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NATURAL GAS LEGISLATION

HEARING

BEFORE THE

COMMITTEE ON
ENERGY AND NATURAL RESOURCES
UNITED STATES SENATE

NINETY-EIGHTH CONGRESS

FIRST SESSION

ON

S. 615, S. 60, S. 239, S. 291, S. 293, S. 370, S. 689

APRIL 6, 1983

PART 3

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NATURAL GAS LEGISLATION

WEDNESDAY, APRIL 6, 1983

U.S. SENATE,
COMMITTEE ON ENERGY AND NATURAL RESOURCES,
Washington, D.C.

The committee met, pursuant to notice, at 9:35 a.m., in room SD-106, Dirsken Office Building, Hon. James A. McClure (chairman) presiding.

Present: Senators McClure, Domenici, Warner, Nickles, Hecht, Johnston, Ford, and Bradley.

Also present: Charles A. Trabandt, chief counsel; E. David Doane, deputy chief counsel for energy; Howard Useem, professional staff member; and Elizabeth Moler, counsel for the minority.

OPENING STATEMENT OF HON. JAMES A. McCLURE, A U.S. SENATOR FROM THE STATE OF IDAHO

The CHAIRMAN. Good morning. The committee will come to order.

The purpose of today's hearing is to receive additional testimony on the administration's natural gas proposal, S. 615, and the other pending legislation.

The witnesses are Secretary of Energy Donald Hodel, and the Chairman of the Federal Energy Regulatory Commission, C. M. Butler.

During the course of the committee's hearings, various witnesses have raised a number of policy and technical issues associated with the administration's proposal and the approaches offered by others. As a result, several members of the committee have requested a further opportunity to explore those issues in more detail, and to ask additional questions of Secretary Hodel and Chairman Butler. The hearing today will accommodate those requests.

Today's hearing is the eighth and final day of the committee's hearings on the pending natural gas legislation. In the 5 days of hearings here in Washington and the 2 days of field hearings in Oklahoma, the committee has received testimony from a total of 85 witnesses representing a wide variety of organizations, corporations, and individuals.

I have a statement from Senator Nickles and one from Senator Jepsen for the record.

[The prepared statements of Senator Nickles and Senator Jepsen follow:]

U.S. SENATOR

DON NICKLES

FROM OKLAHOMA

FOR IMMEDIATE RELEASE
April 6, 1983

CONTACT: Paul Lee
202/224-5754

I want to thank you, Mr. Chairman, for the responsible way in which these hearings have been conducted during the past several weeks. This is an issue of extreme importance to millions of Americans, and I believe all sides have been well represented.

I also thank the Secretary of Energy, Mr. Hodel, for the outstanding way in which he has tackled this issue. Secretary Hodel has gone to great lengths to both educate the public and balance competing interests. He is to be congratulated.

This committee held two days of hearings last week in my state of Oklahoma. Although opinion was somewhat varied, a clear concensus emerged supporting natural gas deregulation. The Oklahoma hearings brought a great deal of expertise to the problems surrounding natural gas. I think we, in Washington, are sometimes limited to a narrower perspective on certain issues--especially those as complicated as natural gas--because the vast majority of hearings are held in Washington; I am grateful this committee saw the wisdom of including testimony from a state which specializes in all aspects of natural gas.

These days are troubled days for the natural gas industry; troubled in large part because of federal government regulation. I received a report yesterday that producers were able to sell only 39 percent of the gas produced last year from Oklahoma's main source wells. The number of active drilling rigs is about 30 percent of what it was a year ago at this time. More and more workers are being laid off. Unless we in government free the natural gas marketplace from counterproductive restrictions it will be the consumers who suffer the long term consequences of shortages and higher prices.

As I have previously stated, I believe the Reagan Administration's deregulation proposal is a good starting point. During the Oklahoma hearings, when given the choice between the Natural Gas Policy Act (NGPA) and the Administration's proposal, most but not all witnesses opted for the new plan.

One area of consistent agreement concerned the Fuel Use Act. There seems to be broad support for its repeal. I hope this committee seeks repeal, either as part of the final deregulation package or as a separate issue. The Fuel Use Act is a costly and burdensome law which is no longer relevent today.

One issue, central to the deregulation debate, is the abrogating of contracts. Although most of the producers who testified in Oklahoma admitted they would probably gain economically by marketing-out of their old gas contracts, they opposed this provision. Many believe it is a dangerous precedent amounting to unparalleled federal intrusion. Business is built on contract sanctity, and a violation of this principle-especially on an industry-wide basis-- could be ruinous. Industry officials testified that they entered in compliance with federal law and that the federal government should not now come in and abrogate their contracts whether they old or new.

I don't believe Congress can solve the problems of the natural gas industry simply by allowing the abrogation of contracts.

The Oklahoma hearings also exposed the serious problems with the proposed method of calculating a cap on natural gas prices. It is the consumers, again, who will suffer the consequences of this provision. Experts say this provision is unrealistic in that it will not reflect a market-clearing price. The result could be a roll-back in prices, with the ultimate effect being bankruptcy for many producers. All this could lead to a serious natural gas shortage in 5 to 8 years.

One industry especially hard hit because of today's high natural gas prices is fertilizer manufacturing. Yet even this industry supports natural gas decontrol because they believe prices will drop as a result. Here is an industry in which 80 percent of its cost to produce a product is natural gas, and every increase in the price of gas adversely affects it--yet the Oklahoma Fertilizer Manufacturers Association strongly favors decontrol. OFMA testified that their members use 90 billion cubic feet of gas a year, one-half the total amount of all natural gas used in Kentucky each year.

One misconception that was dispelled during the Oklahoma hearings was the widely held belief by persons outside the natural gas industry that current gas prices are the maximum allowed under the NGPA. A recent analysis reveals that new prices are well below the NGPA ceiling. Obviously, the industry is responding--within the restrictive framework of NGPA--to market conditions. Imagine how both the industry and consumers would benefit today if there was healthy competition in a natural gas industry free from burdensome regulation like NGPA.

I hope my colleagues take the opportunity to examine some of the testimony from the Oklahoma hearings. I believe Oklahoma's input would greatly benefit those seeking a solution to the natural gas deregulation issue.

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TESTIMONY OF THE HONORABLE ROGER W. JEPSEN,
U.S. SENATOR FROM THE STATE OF IOWA
BEFORE THE SENATE ENERGY COMMITTEE
APRIL 6, 1983

MR. CHAIRMAN, I APPRECIATE THIS OPPORTUNITY TO ONCE AGAIN ADDRESS THE VERY SERIOUS AND DEVASTATING PROBLEM THIS COUNTRY IS FACING WITH RAPIDLY ESCALATING NATURAL GAS PRICES.

AS YOU WILL RECALL, I ADDRESSED THIS ISSUE BEFORE YOUR DISTINGUISHED COMMITTEE ON DECEMBER 13, 1982, WHEN YOU HELD A VERY TIMELY HEARING TO EXPLORE CURRENT MARKET CONDITIONS AND TO BEGIN A REVIEW OF POSSIBLE SOLUTIONS TO THE PROBLEMS WHICH WE ARE FACING TODAY WITH THE NATURAL GAS PRICING SYSTEM. THAT HEARING COINCIDED WITH MY INTRODUCTION THE FOLLOWING DAY OF AN AMENDMENT TO THE SO-CALLED GAS TAX BILL TO CORRECT THE NATURAL GAS PROBLEM.

THAT HEARING WAS ALSO TIMELY IN THAT IT SIGNALED TO THE COUNTRY THE GENUINE CONCERN OF THE SENATE ABOUT THIS PROBLEM AND THE TRAGEDY IT IS INFLICTING ON CONSUMERS.

THE HEARINGS WHICH THE ENERGY COMMITTEE IS CURRENTLY HOLDING ARE ALSO VERY TIMELY. IT IS MY HOPE THAT YOU WILL MOVE TO A MARKUP AS SOON AS POSSIBLE, FOR IF WE ARE TO RID THIS NATION OF THE PRICING PROBLEM WHICH IS CERTAIN TO PLAGUE US AGAIN NEXT WINTER, WE MUST TAKE ACTION TODAY.

2-2-2-2

ON MARCH 16, I REVISED AND EXPANDED MY EARLIER LEGISLATION BY INTRODUCING S. 823, THE NATURAL GAS FAIR MARKETING ACT OF 1983. THIS BILL WORKS WITHIN THE EXISTING REGULATORY FRAMEWORK, MAKING CHANGES TO ALLOW THE PRICE OF NATURAL GAS TO FALL TO MARKET CLEARING LEVELS AND TO PROMOTE COMPETITION. IT WILL NOT, AS THE ADMINISTRATION PROPOSES, DEREGULATE; NOR WILL IT, AS SOME OF MY COLLEAGUES PROPOSE, RE-REGULATE. IT SIMPLY LOOKS AT EXISTING LAW AND MAKES NECESSARY, CORRECTIVE CHANGES.

S. 823 HAS BEEN ENDORSED BY THE NATIONAL ASSOCIATION OF REGULATORY UTILITY COMMISSIONERS (NARUC). YOU HAVE HEARD THEIR TESTIMONY PREVIOUSLY. I ASK THAT YOU GIVE SERIOUS CONSIDERATION TO S. 823 AS THE ENERGY COMMITTEE PREPARES LEGISLATION FOR THE SENATE FLOOR. IT IS MY BELIEF THAT THIS BILL PROVIDES FOR THE CONSENSUS NECESSARY FOR THE SENATE TO TAKE ACTION ON THE NATURAL GAS PRICING PROBLEM.

THE ADMINISTRATION'S PROPOSAL TO DEREGULATE WOULD BE DISASTROUS FOR THE STATE OF IOWA. I AM CONVINCED THAT IT WILL ALLOW FOR IMMEDIATE PRICE INCREASES WHICH WILL BE INTOLERABLE FOR IOWANS AND WILL WREAK FURTHER HARDSHIPS UPON THEM. INDEED, SOME HAVE ESTIMATED THAT THE ADMINISTRATION PLAN WILL COST IOWANS $4 BILLION. SIMILARLY, I CANNOT AGREE THAT RE-REGULATION WILL HELP IOWANS. I AM CONVINCED THAT RE-REGULATION WILL ONLY ASSURE SHORTAGES OF NATURAL GAS, THUS PROVIDING FOR INTOLERABLE HARDSHIPS AND PRICE INCREASES.

IOWA IMPORTS 98 PERCENT OF ITS ENERGY. LAST YEAR IOWANS PAID $5 BILLION FOR ENERGY -- $3.5 BILLION OF WHICH WENT OUT OF STATE.

3-3-3-3

IN THE LAST THREE YEARS, THE COST OF NATURAL GAS IN IOWA HAS RISEN AT LEAST 100 PERCENT. FOR EXAMPLE, THE PRICE OF NATURAL GAS IN OSAGE, IOWA, HAS RISEN 250 PERCENT IN THE LAST FOUR YEARS, WHILE ELECTRIC PRICES HAVE RISEN ONLY 9 PERCENT. AS A RESULT OF THESE UNBEARABLE INCREASES, INDUSTRIAL USERS ARE SWITCHING TO OTHER FORMS OF ENERGY, AND CONSUMERS ARE TRYING TO CONSERVE. THE END RESULT, HOWEVER, IS THAT NO MATTER WHAT YOU DO, PRICES KEEP GOING UP.

THIS VICIOUS PRICING SPIRAL, WHICH IS LITERALLY TAKING FOOD FROM PEOPLES' MOUTHS AND HAMPERING INDUSTRY, MUST BE BROKEN. THIS MADE-IN-WASHINGTON PROBLEM MUST BE CURED HERE IN WASHINGTON -- NOW.

PERMIT ME TO BRIEFLY TOUCH UPON THE HIGHLIGHTS OF S. 823. THE BILL EXPANDS THE DEFINITION OF "ABUSE" IN THE NATURAL GAS POLICY ACT (N.G.P.A.), SIMILAR TO THAT IN S. 239. IT PROHIBITS INDEFINITE PRICE ESCALATOR CLAUSES IN PRESENT AND FUTURE CONTRACTS FOR PRODUCER-PIPELINE SALES, AND MANDATES MARKET-OUT CLAUSES TO BE INCLUDED IN ALL CONTRACTS, EXISTING AND FUTURE. TAKE-OR-PAY CLAUSES ARE LIMITED TO 50 PERCENT. PIPELINES WOULD BE REQUIRED TO BEGIN BY REDUCING THEIR TAKES OF GAS FROM AFFILIATES WHICH ARE PRICED AT THE SAME RATE OR HIGHER. THE CONTRACT PARTIES WOULD HAVE THE RIGHT TO ADJUST THE VOLUME OF GAS BASED ON MARKET CONDITIONS. FAILURE TO UTILIZE THIS RIGHT WOULD CONSTITUTE ABUSE UNDER THE N.G.P.A.

PIPELINES WHICH EXERCISE THIS RIGHT WOULD BE REQUIRED TO TRANSPORT THE REFUSED GAS FOR THE PRODUCER TO A SECONDARY PURCHASER FOR 5 CENTS PER MILLION BTU's PLUS COSTS.

THE FEDERAL ENERGY REGULATORY COMMISSION (FERC) WOULD BE REQUIRED TO REPORT ANNUALLY TO CONGRESS ITS EFFORTS -- IN COOPERATION WITH STATE REGULATORY COMMISSIONS -- TO RESTRUCTURE THE RELATIONSHIP BETWEEN PIPELINES AND DISTRIBUTION COMPANIES FOR THE PURPOSE OF REDUCING DISTRIBUTION COSTS BY INCREASING THE POSSIBILITIES OF COMPETITION. ALSO, PIPELINE-PRODUCER CONTRACTS WOULD BE REQUIRED TO BE FILED WITH FERC. FINALLY, THIS BILL WULD REPEAL TITLE II OF THE NATURAL GAS POLICY ACT.

THE AMERICAN PUBLIC IS LOOKING TO US FOR RELIEF FROM THESE DEVASTATING PRICE INCREASES. WE NEED TO TAKE THE NECESSARY STEPS NOW IN ORDER TO PREVENT PAIN AND HARDSHIP TOMORROW.

ARRIVING AT A SOLUTION WILL NOT BE EASY. THIS IS AN EMOTIONAL ISSUE THAT IS ALSO ONE OF THE MOST COMPLEX ISSUES THAT THIS CONGRESS MUST FACE. BUT WE CAN HANDLE IT. WE MUST SOLVE THIS PROBLEM. AGAIN, I BELIEVE THAT S. 823 PROVIDES THE CONSENSUS THAT IS NEEDED.

I URGE YOU TO MOVE QUICKLY. THE PATIENCE OF THE AMERICAN PUBLIC IS FAST WEARING THIN.

MR. CHAIRMAN, AT THIS TIME I SUBMIT TO THE COMMITTEE THE PROCEEDINGS OF AN IOWA STATE COMMERCE COMMISSION INVESTIGATION INTO THE CAUSES OF INCREASED NATURAL GAS COSTS FLOWED THROUGH THE PURCHASED GAS

ADJUSTMENT CLAUSE AND ASK THAT THE COMMITTEE PLACE THESE FINDINGS IN THE PERMANENT COMMITTEE FILES.

THANK YOU FOR YOUR CONSIDERATION.

The **Chairman**. Mr. Secretary, I understand you have a prepared statement that you wish to make a part of the record, and you may proceed in whatever manner you prefer.

STATEMENT OF HON. DONALD PAUL HODEL, SECRETARY OF ENERGY

Secretary **Hodel**. Thank you, Mr. Chairman. I appreciate this opportunity to return before this committee and discuss S. 615. I think that although we have passed the winter season and we are fortunate to have had a relatively mild winter, the urgency for dealing with the natural gas issue remains. I am very pleased and I commend you, Mr. Chairman, and the members of this committee, for the expeditious manner in which you have proceeded to deal with this bill; and I welcome the opportunity to participate with you in that effort.

I would just like to say, as a summary of our proposal, there are three key principles set forth in that bill which I think are essential.

First is the freedom to renegotiate contracts and to negotiate new contracts in a free market atmosphere.

Second, there must be something done about the contracts which presently exist and which were executed by parties pursuant to Federal law that created a strange or different or an unusual atmosphere in which to execute those contracts. We need to eliminate those disincentives that exist in contracts today for low-priced gas, old gas, to reach the market.

Third, we feel it is important that a consumer protection provision be included in any such legislation so that, although we are confident the market will work, the consumer not be asked to bear the risk of the accuracy of that confidence.

I am convinced from the review we have made so far that no other proposal that is presently before this committee, including making no changes in the Natural Gas Policy Act of 1978, holds any real prospects for getting low-cost gas to the market.

My prepared statement, Mr. Chairman, deals with a number of the questions which have been asked by many of those witnesses you referred to in your statement. I think the statement tends to speak for itself on those issues, but I would like to emphasize a couple of points from that statement.

One area of concern which has been raised is, why should we decontrol old gas? I need to remind the committee that, in my initial presentation before you, I made the point that we, too, have questioned was that necessary, or if it was necessary, is there some way to get there other than going directly to a completely free market?

We concluded this was by far the most effective means of providing assistance to the consumer and providing rationalization to the gas market and the gas system in this country. We think there are a number of outgrowths of permitting free negotiation for the price of old gas.

First of all, we believe it will lower the prices of gas now. Our estimates in the analysis we have done indicate a 10- to 30-cent reduction in price per thousand cubic feet versus expectations in the next year that, under the Natural Gas Policy Act, prices would go up an additional 10 cents. So we are talking 20- to 40-cent price reduction compared to the Natural Gas Policy Act in the next year.

The critics who have attacked our proposal and suggested that the price will rise have used hypothetical programs, not the administration's proposal, not S. 615; and they have assumptions about high oil prices in their analyses which cause their figures to show rapid and significant price increases. They also assume an unrealistically high ratio relationship between gas and oil prices; and we estimate that may be high by 10 to 20 percent which, of course, has a significant impact. We think the existing surplus which today measures probably 1.4 trillion cubic feet on an annualized basis, is a very strong assurance that the price would tend to come down.

The Natural Gas Policy Act, as we know, has tended to become a floor for prices rather than just a ceiling because contracts relate to the highest allowable price under Federal law. We would get away from that problem. It is interesting to note on page 16 of my testimony, Mr. Chairman, there is a chart which shows that the decline in the supply of old gas has been greater than the normal expected decline. Now this chart is based upon 20 interstate pipelines with approximately 85 percent of the natural gas market, and these are based upon recent purchased gas adjustment filings with the Federal Energy Regulatory Commission. Normally we would expect a 15-percent decline in the old gas supply, but if you look at the chart, column 1 shows that 6 billion cubic feet late in 1981, 1982. The normally expected decline would reduce it to 5,174. The actual volume was 4,634 or a decline of approximately 24 percent rather than a 15-percent decline. If you look at the high-cost gas, the third line of the chart, there is a 60-percent increase rather than what we would expect to be a lower increase had we been able to maintain just the normal reduction in old gas supply.

We believe that our bill will maximize the production and supply of old gas.

The CHAIRMAN. Could I interrupt for just a moment? I understand that what you are saying there with respect to those volumes is that amount which is actually purchased and delivered through the pipelines? It doesn't refer to supplies or reserves or potential production?

Secretary HODEL. These are actual purchases by the pipelines.

The CHAIRMAN. Thank you.

Secretary HODEL. Exactly. Normally, we would expect them to decline by 15 percent, not by 24 percent, so what we believe is happening is there is premature abandonment of wells. We have asked industry to make some estimates of what will be available on an additional gas supply.

I think it is significant, Mr. Chairman, that the industrial estimates range from an additional 2.5 trillion cubic feet up to 11 trillion cubic feet additional supply of old gas. Now the 11 trillion cubic feet comes from the most extensive study which was made by looking at the abandonment pressure in 14 of the largest gas fields representing approximately 37 percent of the old gas. But, that is a significant increase in the amount of old gas that could become available, in our view, if there were incentives for the producers to rework those wells and to continue producing from wells when pressure reaches levels that they might otherwise decide to discontinue pumping.

Now, an example, I think, came from the oil experience we had. Experts predicted essentially no response or a very limited response in terms of additional supplies as a result of oil decontrol. Declines in reserves of old oil occurred from 1977 through 1979. Deregulation began in 1980, and there was almost an immediate response of 150 million additional barrels of old oil being added to the reserves, and in 1981 another 180 million barrels were added. It is essential, it seems to me, on any rational basis that we bring low-cost gas to the market. Further, we think that the old gas cushion distorts the market. It encourages market distortion. It has been used effectively to bid up new gas. Therefore, the consumer has not benefited from the availability of old gas as was anticipated when it was made available.

High-cost gas suppliers, I would point out, Mr. Chairman, have become the most vocal opponents of our proposal. Frankly, Mr. Chairman, if I were trying to bring $15-per-thousand-cubic-foot gas from distant places to the United States, the most effective thing I could do would be to seek recontrol, which in short order would result in shortages and create a panic situation in which I would then be able perhaps to sell my high-cost gas.

We believe the procontrol arguments are contradictory. They say first they will keep the prices low and subsidize high-cost production. Both of those statements cannot be true, and, in fact, they have proven not to be. Prices have not stayed low. We have subsidized the production of high-cost gas, and had it brought to the market to the disadvantage of the consumer.

I will not deal, Mr. Chairman, with some of the other questions that are set forth in detail in my statement. I would simply like to conclude by saying that all of us probably agree that many of the specific provisions of the various natural gas proposals before Congress are subject to open debate by reasonable men and women. However, it may be more important for us to acknowledge that our options, in terms of the general approach, are not extensive or highly debatable. We can choose to take no action and thereby continue a complex regulatory system that satisfies virtually no one and poorly serves the American consumer.

Alternatively, we can choose to enact proposals that claim to provide short-term price benefits by freezing or rolling back prices—a course of action that contradicts all of our experience with the longer term economic and consumer impacts of price controls. Or, we can seek the opportunity to fashion a solution that provides a smooth transition from initial costly Government regulation to a free market, with every indication in so doing that we will realize both near-term price benefits and long-term market efficiencies.

Our approach to achieving a full market-based pricing system for all gas will benefit consumers by bringing the largest supply at the lowest price over the longest period of time. Bills to recontrol prices, on the other hand, would benefit only one group over the long term—those who are the producers of high-cost domestic and foreign gas.

We firmly believe we should work to benefit American consumers rather than high-cost gas producers. Among the consumers who generally favor our approach are industrial gas users, Mr. Chairman. They buy more gas than any other group, and, in most cases, they would be the first consumers to face curtailments if shortages should occur. Industrial consumers have absolutely no incentive to pay higher prices or to incur the risk of inadequate supplies that could mean production cutbacks and loss of jobs. They do have the incentive and the capacity to analyze our proposal carefully, along with others that have been offered. I am sure they are generally supportive of our bill because they are convinced it offers the lowest prices and the highest assurance of adequate supplies.

I want to renew my pledge, Mr. Chairman, to work with this committee in attempting to find a comprehensive solution to the problems of this gas market, and I will be happy to try to respond to the questions of the committee.

[The prepared statement of Secretary Hodel follows:]

STATEMENT OF

DONALD PAUL HODEL
SECRETARY OF ENERGY

Mr. Chairman:

I am pleased to appear again before this Committee in support of S. 615, the Administration's proposed natural gas consumer regulatory reform legislation. I would like to begin by reviewing the major features of our proposal and then proceed to respond to some specific questions that have been posed about how and why S. 615 will work, and how it compares with other proposals.

Our objective is to ensure that adequate supplies of natural gas are available to consumers at reasonable prices. There is a consensus that this is not happening under the NGPA, to the disappointment, I am sure, of all of us, the American consumer and those who supported the enactment of that statute. Decades of Federal price controls have resulted in inefficiencies and inequities. The laws and regulations that govern natural gas markets today have produced conditions, reflected in contract terms between producers and pipelines, that are not responsive to current market realities. In fact, under the NGPA, gas pricing is inflexible and is encouraged to go in only one direction: up. As a result, gas prices to consumers continue to rise, despite the availability of plentiful supplies and vigorous competition from alternative fuels, and consumers are paying more than they will in a free market.

The most efficient means for ensuring that consumers have access to adequate supplies of gas at reasonable prices is to remove impediments to the free market. Achieving this removal of regulatory impediments is a primary goal of our proposed legislation. At the same time, our bill contains provisions to ease the transition from nearly 30 years of price regulation to a free market.

We consulted with consumers, pipelines, distribution companies, and producers in the process of developing our proposal and concluded that the transition to a free market must be based on three key principles:

(1) Freedom to negotiate new contracts that will operate according to their terms;

(2) Elimination of disincentives to produce and sell low cost gas; and

(3) Consumer protection.

Consumers have faced substantial increases in the price of gas since the passage of the Natural Gas Policy Act, and we know that movement to a decontrolled market raises concerns that prices might continue to increase rapidly. The decontrol of oil prices raised similar concerns, but our experience in the two years since the President removed price controls on crude oil and petroleum products demonstrates the benefits of a free market policy -- namely, lower prices. Our analysis of natural gas markets and of the effects of our proposed natural gas legislation indicates that we can expect results for natural gas prices similar to those that occurred for oil prices. Using last fall's projected oil prices (which are higher than current oil prices), we expect that our bill will result in a decrease in the national average wellhead price of gas of between 10 and 30 cents per thousand cubic feet in the first year after enactment. Natural gas prices will be 20 cents to 40 cents lower under our proposal than would occur in the same year under the NGPA. Even greater benefits could occur if oil prices decline below the cautious oil price projections used in our estimates.

Our proposal not only benefits natural gas consumers; it benefits all American consumers. Decreased gas prices will reduce the rate of inflation by a small percentage both directly and by reducing the cost of goods and services that are produced with natural gas. We project that our proposed legislation also will provide impetus for still lower oil prices by allowing oil and gas to compete in the marketplace, resulting in a decline in oil imports of about 100,000 to 200,000 barrels per day in the first year following enactment.

In summary, we project that our proposal's economic benefits to the natural gas consumer through 1990, compared to the projected market situation under the NGPA will be at least $7 billion, using a discounted present value.

HOW AND WHY S. 615 WILL WORK

Let me turn now to questions that have been posed about our proposal.

Why Will S. 615 Work?

Simply stated, S. 615 will work because it allows and encourages producers, pipelines, and consumers to act in response to existing market conditions -- particularly, plentiful supplies and downward price pressures -- and because it avoids the potentially disruptive effects that conceivably might accompany an abrupt change from a regulated environment to a free market. Moreover, the market system proposed under S. 615 provides incentives for development of an adequate supply of natural gas in the years ahead.

The case for decontrol is a strong one, as our experience with oil decontrol shows. Predictions 2 years ago that gasoline prices would rise to $2.00 or more per gallon as a result of the President's action to decontrol oil prices proved to be incorrect. I am sure this Committee recalls that the fervor accompanying those predictions was just as vehement as that with which some have predicted the dire results that will occur if S. 615 is enacted.

Following the President's action on January 28, 1981, to remove all remaining oil price controls, gasoline prices continued upward for a short period until high-priced inventories had been exhausted. Thereafter, the average retail price of gasoline declined from $1.39 per gallon in March 1981 to $1.27 a year later; the price 2 years later, in February 1983, was $1.17. Predictions about production levels also proved wrong. Domestic petroleum production is .5 to 2.0 million b/d in excess of estimates made by CBO, OTA, and GAO, and these higher levels of production are occurring even though prices since decontrol have been lower than estimated. With passage of

S. 615, we expect similar benefits for the natural gas market, which currently produces 19 tcf of gas annually from 200,000 wells operated by more than 12,000 producers.

The market is the solution to the natural gas problems confronting us, and S. 615 is the only natural gas proposal that takes a market-oriented approach. Thus, it is the only proposal that will create a stable environment that allows business to serve the American consumer efficiently.

The principles on which our proposal is based -- freedom to negotiate new contracts, removal of statutory disincentives to low-cost supplies, and, most important, consumer protection -- respond directly and specifically to the failures and inefficiencies of the currently regulated natural gas market. Our proposal will generate lower consumer prices and protect consumers against unwarranted price increases. It will promote competitive behavior by allowing producers and pipelines to bargain over price, and it will increase competition in the natural gas market with direct sales and contract carriage. In addition, it will ensure smooth transition to a free market.

Is there sufficient competition in the gas market to bring lower prices?

Some people argue that since an individual residential consumer is connected to a single gas distribution company and cannot shop around, the entire gas market therefore is not competitive. This argument overlooks the extremely competitive conditions in the natural gas market at the wellhead.

To determine whether the gas industry is competitive, the analysis must examine each of the various segments of the industry. The fact that a residential consumer buys gas from only one distribution company does not make the entire industry monopolistic. Where monopolies exist -- for instance, gas distribution companies and electric utilities -- regulation is appropriate and necessary because individual consumers have nowhere else to buy the commodity or service provided. But the existence of a monopoly at one point in the distribution system does not justify regulating the production of the commodity being distributed. To suggest otherwise is tantamount to saying that the price of coal should be regulated because it is distributed (in the form of electricity) by monopolistic utilities.

The natural gas industry can be highly competitive, and recent claims to the contrary are wrong. The facts are:

- There are more than 12,000 natural gas producers operating more than 200,000 natural gas wells.

- The 20 largest natural gas producers sell only 48 percent of all supplies. Simple arithmetic makes the implication of this figure clear: More than 50 percent of all natural gas is sold by more than 12,000 natural gas producers.

- The natural gas industry is substantially less concentrated than other industries normally considered competitive, such as breakfast foods, tires, copper, and soap and detergents. For example, the market share for the top four natural gas companies is 16 percent. This compares very favorably with the norm for all other U.S. industries where the average market share of the four largest firms in any industry is 41.5 percent.

- Natural gas competes with other fuels. Forty percent of natural gas delivered in 1981 was used by industrial consumers, many of whom have dual fuel capability. Fully 85 percent of large industrial boilers that burn natural gas are capable of switching easily from gas to oil. Electric utilities account for another 20 percent of natural gas demand, and they will freely compete for natural gas supplies if restrictions of the Fuel Use Act are eliminated.

- Gas is readily interchangeable between markets and among buyers and sellers. A producer in Texas, for example, is not locked into selling his gas only to one buyer in one state. Because of pipeline interconnections, he has a wide array of buyers in many states to whom he can sell gas.

- There are between 40,000 and 60,000 individual contracts under which natural gas sales transactions are made.

The natural gas industry involves tens of thousands of businesses and equally large numbers of contracts and transactions; its integrated transportation network allows buyers to deal with sellers throughout the market. It has a standardized product, which competes with alternative products. There are no large market shareholders, so no individual business or contract is large enough to dictate market behavior. It would be hard to find a more classic example of a competitive market or more reasons for competitive behavior than are found in the natural gas industry.

The natural gas industry will become even more competitive with the enactment of S. 615. Under the Administration's proposal, producers will be able to bargain all terms of their contracts without regulatory constraints, and markets will be expanded with direct sales and contract carriage. Until then, however government regulation will stifle competitive behavior, harming instead of helping American consumers.

Why is it reasonable to expect renegotiation of existing contracts?

It has been suggested that parties to existing contracts will have no incentive to renegotiate, but rather that they will choose to remain under their existing contracts until the market-out date. It is further argued that on January 1, 1985, a price spike will occur, or that producers will shut-in their old gas production in an effort to obtain substantially higher prices. In either event, many contend that chaos and shortages will develop in 1985.

We firmly believe that none of these events is likely to occur. The scenario described above simply is not in the interest of any of the parties. It is in their interest to begin renegotiation immediately and thereby to ensure gradual transition to a market-based system in 1985.

The incentives to begin the renegotiation process immediately are substantial. Producers need to maintain their revenues and cash flow by selling gas. Pipelines need to maintain adequate supplies of gas in order to serve their customers. Neither of these objectives will be achieved without renegotiation, and neither party can afford to wait until the last minute to determine whether he will be able to buy or sell gas.

Market conditions are such that in some instances industrial customers, who in 1982 accounted for 40 percent of total gas demand, are switching to alternative fuels because in some areas of the country gas prices have risen to levels that are not competitive. The American Gas Association estimates that 330 bcf of gas demand has been replaced by lower priced oil in the last year alone. Producers and pipelines know that further gas price increases could be extremely detrimental, giving them strong incentive to conclude reasonably - priced contracts soon.

In addition, the competitive nature of the industry and the need for certainty and stability will encourage early renegotiation. These factors are critically important to businessmen. In an uncertain world, where no one can precisely predict future energy demand and future energy prices, businesses attempt to obtain as much certainty as possible through contractual relationships. The only avenue to stability and certainty in an unpredictable energy environment and a highly competitive natural gas industry is to obtain, through renegotiation, contracts consistent with market conditions and sound business practices.

The provisions of S. 615 strengthen the incentives to renegotiate that already are provided by the market and the competition in the natural gas industry. Contracts that are not renegotiated will be subject to the gas price cap imposed by our bill. The cap will apply to all pre-enactment contracts, and gas prices under these contracts will be limited to the lower of the cap or the maximum lawful ceiling under the NGPA. Thus, producers and pipelines that reject or fail to initiate offers to renegotiate will forego an immediate opportunity to operate on terms, including price, which they determine, as opposed to those determined by the government.

At the same time, either party to a pre-enactment contract will be able to opt out of that contract on January 1, 1985. This market-out option significantly increases the uncertainty that producers and pipelines will face if they fail to renegotiate now. Producers need secure markets and pipeline companies need secure sources of supply. They are faced with two possible courses of action: They can refuse to renegotiate now, remain subject to government controls, remain bound by existing and largely unsatisfactory contract terms, and face the possibility of losing markets or sources of supply on January 1, 1985. Or, they can adjust existing contracts, bargain freely for alternative prices not subject to government controls, and assure themselves of secure markets and sources of supply now and after January 1, 1985. Rational economic behavior and good business sense dictate the latter course -- and that means renegotiation.

We believe that concerns about instability in the gas market are unfounded, and we are confident that renegotiation will begin immediately and will provide an orderly transition to a market-based system in 1985.

Why Should "Old Gas" Be Decontrolled, As Proposed By S. 615?

The essential question in the debate on natural gas -- a question asked time and again -- is why decontrol old gas? The answer is that unless old gas is decontrolled, we will not have solved natural gas pricing in a way that brings to consumers the benefits of lower prices and assured supplies. The reasons for decontrolling old gas are compelling:

Decontrol of Old Gas Will Mean Lower Prices Now

Under the Administration's proposal, prices will decline by 10 to 30 cents in the first year after decontrol. By contrast, prices under NGPA in the same year would rise by about 10 cents per mcf. The difference between our proposal and NGPA is clear: Prices will be 20 to 40 cents lower per mcf in a deregulated environment than they would be in the same year under NGPA.

There is very little dispute that lower prices would occur immediately if it were not for the provisions of the Natural Gas Policy Act. No one has been able to come forward with any studies to the contrary. Those who have projected increasing prices have not relied on the Administration's proposal in making their projections. The C/LEC estimates, for example, are based on a hypothetical decontrol proposal and simply project high 1984 oil prices. They do not account for our PGA moratorium or the gas price cap which will prohibit increases under indefinite price escalators. In addition, their estimates understate the impact of the current gas surplus, express impacts in nominal instead of real dollars, and rely on an arbitrary relationship between gas and crude oil that is too high by 10 to 20 percent. As a result, their estimated impacts of decontrol are grossly exaggerated.

Today's gas surplus is at least 1.4 tcf. As any first year economics student knows, if you have more supply than you have demand at a given price, the price falls -- that is, unless government regulation is involved. Why aren't gas prices falling? The reason is simple. The NGPA prevents prices from falling and instead causes a continuing upward price spiral. NGPA price controls act as floors rather than ceilings, because contract clauses escalate prices to the highest government-allowed rate, and do so without regard to market pressures. The effect is to constantly ratchet the price of natural gas upward, contrary to the laws of economics.

In addition, contracts entered into during a period of perceived shortage (which was attributable to government price regulation), include take-or-pay requirements that are causing low-cost gas to be shut-in, since the older, low-cost contracts have lower take-or-pay requirements. During periods of falling demand, a pipeline cuts back first on purchases from contracts without high take-or-pay requirements -- usually older, low-cost gas, which then winds up being shut-in.

Recent data from PGA filings by the 20 largest interstate pipelines, which account for 85% of interstate gas sales, and approximately half of all gas sales, show greater than normal declines in pipeline purchases of old gas. At the same time, the data show increasing purchases of higher cost gas. The table below indicates for these pipelines the percentage reductions of low-cost gas and increases of high-cost gas volumes which have occurred during the last year.

SUMMARY OF INTERSTATE PGA FILINGS[1]

	Late 1981-Early 1982 (bcf)	Less Normal Decline (15%)	Actual Volume Late 1982-Early 1983 (bcf)	Change (bcf)	
Old Gas (Sec. 104, 106)	6084	5174	4634	-1450	-24%
New Gas (Sec. 102, 103, 108, 109)	3617	N/A	3722	+105	+3%
High-Cost Gas (Sec. 107)	517	N/A	825	+308	+60%

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[1] EIA Draft report.

All of the above circumstances clearly lead to the conclusion that the NGPA is not providing the lowest priced mix of gas to consumers. Instead, high-cost gas is being delivered first.

This conclusion is buttressed by evidence that shows that NGPA is keeping gas prices above market clearing levels. Industrial load is dropping as a result of fuel switching. Gas prices above the price of competitive fuels are causing industries with dual fuel capacity to switch to oil. The gas industry estimates that 330 bcf of gas demand has been replaced by oil in the last year. Loss of industrial gas demand results in higher gas prices to residential consumers who are left to carry a larger share of the fixed costs of gas supply systems.

These conditions -- surplus supplies, switching to alternative fuels, increased purchases of high-cost gas coupled with decreased purchases of low-cost gas -- in combination with gas prices that keep moving up would never occur if the market were allowed to operate freely. Instead, prices would come down. But, average gas prices will not decline unless and until the market is fully deregulated.

Decontrol of Old Gas Will Maximize Production of Low Cost Gas Supply

Decontrol of old gas will maximize the production of lower cost gas over the short and long terms. Artificial constraints on Section 104 gas are causing premature abandonment of older wells because capital investments that would increase productive capacity are not economical. With only a modest increase in wellhead prices, there are numerous ways economically to extract increased supplies from old wells and thereby gain the benefits of additional low-cost supplies.

Industry estimates of the gas reserve additions attributable to old gas decontrol range from 2.5 to 11 tcf. These reserve additions will come from increased capital investments in existing Section 104 gas wells. It is important to note that the highest estimate of 11 tcf comes from what appears to be the most extensive study, which examined the abandonment pressures for gas wells in 14 of our largest gas fields, accounting for 37 percent of the Nation's old gas reserves. Regardless of the precise amount of the supply response, this Nation simply cannot afford to forego the tremendous potential for low-cost gas supply response.

Our experience with oil decontrol bears on this point. Overall production increases after oil decontrol far exceeded everyone's expectations, including the projections made by GAO, CBO, and OTA. Even more significantly, the production response from old oil fields far exceeded that from new field discoveries. From 1977 through 1979, reserve additions from old reservoirs steadily declined. In 1980, the first year after deregulation began, extensions to old reservoirs sharply increased by about 150 million barrels. In 1981, following immediate deregulation, extensions to old reservoirs increased by an additional 180 million barrels. In comparison, new field discoveries increased by 35 million barrels in 1980 and by an additional 110 million barrels in 1981. Thus, following oil decontrol, extensions of old reservoirs contributed 128 percent more to additions in domestic oil reserves than did new field discoveries.

Market pricing for old gas will stimulate low-cost gas production until economically reachable supplies are completely exhausted. If controls remain in effect, we can be quite sure of one anti-consumer phenomenon: Not all of our low-cost supplies will be produced.

The conclusion is straightforward: We need to produce as much low-cost gas as possible in order to bring to the American consumer the price benefit from these supplies. Additional supplies of low-cost gas will be available only if there are adequate incentives to produce it. Decontrol provides that incentive.

Old Gas Cushion Encourages Market Distortions

Pipelines with large quantities of price-controlled old gas use this "cushion" to bid up the price for new supplies above market. The cushion, therefore, permits pipelines to purchase more expensive supplies, such as LNG, deep gas, and imported gas, than ordinarily would be purchased under a market-based system. It is exactly this practice that has caused high-priced gas to flood certain markets in the country, resulting in justifiable outrage by consumers. High-cost gas is entering the market, while, at precisely the same time, low-cost gas is being shut-in. In my judgment, this condition is absolutely unacceptable. In a free market, it would not occur.

From the consumers' point of view, gas is gas. The fact that in today's wholesale market some gas is priced as low as $.28 per mcf while other gas sells for as much as $11.00 per mcf is not something consumers can or should accept. If we consider that most consumers are not benefitting even slightly from low-cost gas, which is simply being used as a cushion to bid up further the price of already expensive gas, the case for continuing controls on old gas becomes extremely weak.

Put simply, if we are willing to see $11 gas continue to reach the market, there is no better assurance of that result than continued support for a system that maintains the cushion. In fact, we do not believe $11 gas is desirable or necessary in present circumstances. Therefore, we oppose any system that allows these distortions to continue and artifically to raise gas prices. A free market would not permit this to happen. Eleven dollar gas would not be produced today and would not reach consumers until the market could support such development. Predictably, those who supply very high cost gas are the ones who complain most loudly about the prospect of moving to a free market and freeing up lower cost supplies.

In summary, two contradictory arguments have been advanced in support of continued controls on old gas:

1. Controls will keep prices low; and

2. Controls allow the subsidy of high-cost production.

Both cannot be true. What we have seen is that continued controls on old gas have not kept overall prices down, but instead have subsidized high cost production. Such a subsidy has not proven to be in the consumers' interest, and it should not be continued.

Old gas must be decontrolled in order to bring price relief to consumers now and to maximize production of low cost gas in the long run. There is no reason to subsidize high-cost production by continuing to control low-cost supply. The marketplace will best serve the consumer, but it cannot do so as long as it is half controlled and half free.

Why do we need a gas price cap?

The gas price cap serves two key purposes: It will protect consumers by causing prices to decline and by preventing unwarranted price increases, and it will provide market pricing during the transition from a regulated to a free market.

At the same time, it will allow producers and pipelines who renegotiate to be free of Federal regulation, while those who do not renegotiate will remain subject to price controls. Imposition of the gas price cap gives industry a choice -- the "carrot" of renegotiation, market response, and no further controls; or the "stick" of continued pre-enactment contract terms, continued government regulations, and government-imposed prices that most likely will lower the prices that some categories of natural gas currently are receiving.

The gas price cap will be determined by the average price of gas sold under new and renegotiated post-enactment contracts. Because NGPA ceilings for some categories of gas already are well above market levels, application of the average negotiated price -- the cap -- actually will push these ceilings down to levels more consistent with market conditions. In so doing, the cap also will ensure that producers cannot obtain higher prices by electing to remain in a regulated environment than they would obtain if they moved to a free market.

By encouraging renegotiation and preventing prices from rising above market levels, the gas price cap benefits consumers without incurring the costs and administrative burdens of complex, rigid price schedules or the risks of market distortions and likely supply shortages that characterize alternative approaches. The gas price cap is dynamic and will move with the market; it will not require the government to determine precisely what the future economic value of natural gas will be -- a function the government repeatedly has shown it is incapable of performing. In summary, the gas price cap protects consumers and simultaneously permits the government to observe, not direct, the market.

Why do we propose to limit immediate passthrough of purchased gas costs, and why is it reasonable to expect that the limitation will work?

Like the gas price cap, the limitation on immediate passthrough of cost increases is one of the principal consumer protection features of our bill. It is a pipeline-specific approach that permits each pipeline to tailor price decisions to its individual circumstance. It encourages pipelines to negotiate responsibly for the lowest possible purchased gas price because they will be prohibited from immediately passing on to consumers any increases in purchased gas costs beyond those attributable to inflation. Unless FERC determines that a pipeline's purchased gas costs are "just and reasonable and prudently incurred," the pipeline may not pass those costs on to its customers.

Although the passthrough limitation constrains pipelines from unreasonable and imprudent behavior, it does not penalize them nor will it create an unmanageable number of filings with FERC, as some have suggested. We have examined the 20 major interstate pipelines that account for 85 percent of all interstate gas sales, and we estimate that at least 13 of these pipelines will have no reason to file for rate increase approvals because they will have ample room to negotiate or renegotiate contracts within their PGA limits. Moreover, we expect that only some of the remaining seven pipelines will need to apply for rate increase approvals.

As a practical matter, we believe there will be little occasion to use the passthrough limitation mechanism due to the decline in gas costs. Reduced take-or-pay obligations will allow pipelines to lower the cost of their supply mix. The gas price cap will drive down the cost of some categories of gas already priced above the market. Current excess supplies will exert downward price pressures, as will increased supplies of less expensive gas. Finally, passage of our proposal will effectively compel the price of imports to meet domestic gas prices and thus come down. All of these conditions will result in a lower cost mix of supplies, causing most purchased gas prices to fall following enactment of S. 615.

The passthrough limitation, however, is based on the average purchased gas price paid immediately prior to enactment, plus an adjustment for inflation. The difference between inflation-adjusted pre-enactment costs and lower post-enactment gas prices will provide most pipelines with room in which to negotiate without needing FERC approval for rate increases. Furthermore, an inflation factor based on the national average cost of gas will give pipelines with costs below the national average greater flexibility to renegotiate contracts for old gas and to acquire new sources of gas.

For all of these reasons, our estimate that 13 pipelines will not require rate approvals and that few of the remaining 7 will need to file with FERC are conservative. A more complete explanation of our estimates is contained in the appendix to this testimony.

Why doesn't S. 615 provide for price rollbacks of the type included in other proposals?

What "rollback" advocates overlook is that S. 615 will provide the kind of price relief they are trying to obtain through lower government-imposed ceilings, but it will do so in a manner consistent with the free market. Price relief provided by S. 615 will be accomplished without the detrimental effects of government controls.

The rollbacks embodied in other legislative proposals merely continue price controls and government regulation with all of the attendant costs, inefficiencies, and misallocation of resources that are at the heart of today's distorted natural gas market.

The short-term, and largely illusory, benefits that would result from rolling prices back are outweighed by long-term negative impacts, the most severe of which is the certainty at some future point of curtailments and supply shortages. We know from recent experience that attempts to control prices at below market levels will produce shortages, as surely as we know the free market will guarantee adequate supplies at reasonable prices. The further we move away from a market-based system, the less believable alleges production incentives become.

Energy demand will increase as economic recovery continues. Demand will be increased further if recent unusually mild winters are followed by winters with average or even lower temperatures. Either or both of these conditions would exacerbate the negative effects of bills that propose to recontrol prices and would surely result in supply shortages in the near future.

What's Wrong With S. 689 and the C/LEC bill?

The final question I want to address is: What is our view of Senate Bill 689 and the C/LEC proposal? The C/LEC bill has been introduced in the House of Representatives as H.R. 2154, and a substantially similar Senate version has been announced, but not yet introduced. We believe that our objectives and the objectives of the sponsors of these bills are similar -- namely, adequate supplies at reasonable prices. The issue is, how well do these bills achieve these objectives?

The two bills have similar provisions. Both include price rollbacks, options for pipelines to market-out of high-priced contracts, and 50-percent limitations on take-or-pay obligations. Under either bill, controls on old gas, incremental pricing, and fuel use restrictions would continue. Neither bill creates an open market that would provide equal access to all gas.

Shortages and Fly-Up

We believe that S. 689 and the C/LEC bill would guarantee the return of gas shortages and a potential fly-up in prices upon decontrol, which would, therefore, likely never occur. These two factors can be expected to create strong demands for recontrol of all wellhead prices, and we then will be back where we were in 1978.

Our analysis shows that because of the dramatic roll-back in S. 689 to pre-NGPA contract prices, supply shortages could occur before 1985. Under C/LEC, we estimate that shortages of several hundred billion cubic feet could result before 1987, because of its extension of controls, delay in decontrol schedules, and restrictions that limit price escalation to less than the rate of inflation. The S. 689 price roll-back is so severe and appears to be so far below present market-clearing levels, that upon decontrol in 1985, the price to consumers will fly-up by 40 percent to 60 percent. By extending controls for two more years and restraining regulated price increases to less than the rate of inflation, the C/LEC bill guarantees a fly-up in prices when decontrol occurs.

Subsidies to Above-Market Gas Supplies

The pricing provisions of S. 689 and the C/LEC bill increase the impact of the old gas cushion. As a necessary and unfortunate corollary, they increase the incentive to develop highest cost domestic supplies and to import expensive gas from abroad while discouraging development of gas with the lowest production costs. Consumers are justifiably outraged when they are asked to pay inflated prices for high-cost and imported gas while cheap domestic gas supplies are being shut-in. The approaches offered by S. 689 and the C/LEC bill to correct these conditions will not work.

Take-or-Pay and Market-Out

S. 689 and the C/LEC bill assume that market disorders can be cleared up if we just "fix" those "problem contracts". Unfortunately, the assumption is wrong. Existing contracts are symptoms, not causes, of today's disordered market where high-cost gas is favored over low-cost gas. If the old gas cushion is not removed, the disorders will continue. S. 689 and the C/LEC bill will continue the old gas cushion.

The market-out option offered by S.689 and the C/LEC bill does not provide balanced incentives for renegotiation. Pipelines are given a market-out option while producers are not.

Producers are thus denied any incentive to produce and sell a lower cost mix of supply that would result in lower prices to consumers. In addition, the take-or-pay limitations offered by these bills mandate specific limits, thus continuing government controls, and establish these limits at 50% of current take-or-pay obligations - a reduction which may be far too drastic. In short, neither bill provides a situation in which both parties have an incentive and an opportunity to renegotiate.

Summary

S. 689 and the C/LEC bill hold out the promise of temporarily lower consumer prices. They also promise shortages and continued subsidies to high-cost gas production and imports. We owe it to the American gas consumer to go farther than this limited, quick-fix approach. Current market disorders must be dealt with fairly and comprehensively. These disorders are not the result of particular contracts, nor will they go away if we merely delay partial decontrol. We must recognize once and for all that the Government cannot do a better job than the free market. This was demonstrably true with oil, and will also be true for natural gas.

CONCLUSION

Mr. Chairman, all of us probably agree that many of the specific provisions of the various natural gas proposals before Congress are subject to open debate by reasonable men and women. However, it may be more important for us to acknowledge that our options in terms of general approach are not extensive or highly debatable.

We can choose to take no action and thereby continue a complex regulatory system that satisfies virtually no one and poorly serves the American consumer. Alternatively, we can choose to enact proposals that claim to provide short-term price benefits by freezing or rolling back prices -- a course of action that contradicts all of our experience with the longer term economic and consumer impacts of price controls. Or, we can seize the opportunity to fashion a solution that provides a smooth transition from inefficient, costly government regulation to a free market, with every indication that in so doing we will realize both near-term price benefits and long-term market efficiencies.

Our approach to achieve a full market-based pricing system for all gas will benefit consumers by bringing the largest supply at the lowest price over longest period of time. Bills to recontrol prices, on the other hand, would benefit only one group over the long-term -- producers of high-cost domestic and foreign gas. We firmly believe we should work to benefit American consumers rather than high-cost gas producers.

Among the consumers who generally favor our approach are industrial gas users, who buy more gas than any other group and, who, in most cases, would be the first consumers to face curtailments if shortages occur. Industrial consumers have absolutely no incentive to pay higher prices or to incur the risk of inadequate supplies that could mean production cutbacks and loss of jobs. They do have the incentive and the capacity to carefully analyze our proposal, along with others that have been offered. And I am sure they are generally supportive of our bill because they are convinced it offers the lowest prices and the highest assurance of adequate supplies.

I want to renew the pledge I made in my last appearance before this Committee to work closely with you and your colleagues to obtain a comprehensive solution to the problems in today's natural gas market, and I will be happy to respond to your questions and comments.

APPENDIX TO STATEMENT OF
DONALD PAUL HODEL
SECRETARY OF ENERGY

BEFORE THE SENATE ENERGY COMMITTEE
April 6, 1983

Effects of the Administration's Bill on Pipeline Purchased Gas Costs

Table I below provides data on the current average purchased gas costs and the proportion of gas supplies by category for the 20 largest interstate pipelines which transport 85 percent of all interstate gas. By lowering the price paid for new and stripper gas (Sections 102 and 108) and encouraging renegotiation of low - and high-cost gas supplies (Sections 104 and 107), the Administration's bill will lower considerably the average gas prices paid by the 13 pipelines with average prices currently above $2.60 per mcf. These pipelines are expected to have ample room to negotiate new contracts and renegotiate existing contracts without requiring a special purchased gas adjustment to recover higher gas costs.

In addition, we expect that very few of the seven pipelines with average gas prices under $2.60 per mcf will need to apply to FERC for approval of an increase in purchased gas costs. Examination of the table reveals that most of the pipelines with average gas prices below $2.60 per mcf also have significant volumes of new and high-cost gas. The effect of the Administration's bill will be to lower new gas prices through the gas cap and to lower high-cost gas prices through renegotiation of existing contracts. Thus, the seven pipelines with currently low average prices will experience declining prices on a significant proportion of their gas supplies. Further, the average prices paid by these pipelines should be restrained by increasing supplies of low-cost gas (104) from production capacity that is currently shut-in as well as from more intensive production of existing wells.

Table I 1/

Pipeline	Currently Projected 1983 Average Purchase Prices 2/	Volume Purchased by Category			
		High cost (%)	Sec. 102 & 108 (%)	Old Gas (%)	Other (%)
1	3.38	18	37	28	17
2	3.14	12	52	35	1
3	3.02	10	36	39	15
4	2.94	17	22	39	22
5	2.91	8	17	38	37
6	2.83	20	30	38	12
7	2.76	8	26	60	6
8	2.74	0	49	27	24
9	2.72	11	23	58	8
10	2.71	6	26	62	6
11	2.70	7	40	44	9
12	2.68	13	17	63	7
13	2.65*	14	21	49	16
14	2.27	6	12	55	27
15	2.25	6	13	48	33
16	2.15	1	23	66	10
17	2.15	2	24	58	16
18	2.15	6	22	65	7
19	1.98	7	23	66	4
20	1.92	4	14	66	16

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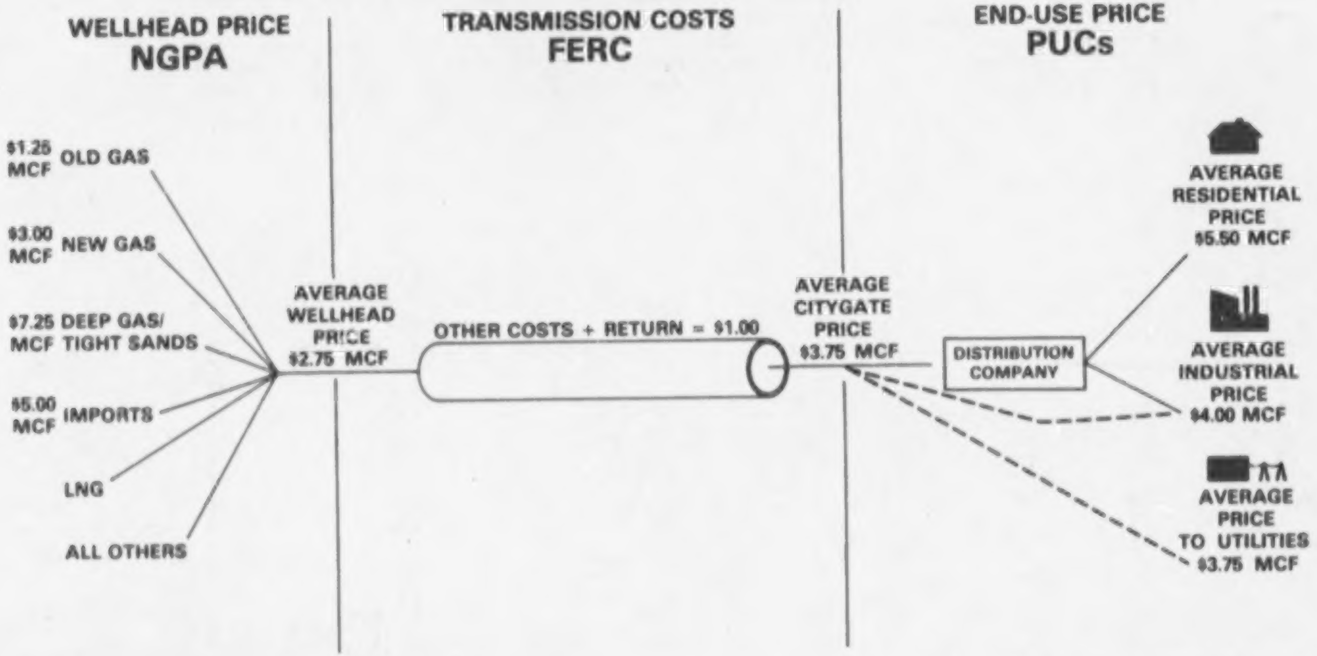
* Those pipelines with average purchase prices at or above $2.60 will have their average purchase prices reduced considerably by the Administration's bill. We do not expect that these pipelines will require approval of a purchased gas adjustment (PGA). We do not expect all pipelines below $2.60 to require a PGA, but we believe that some of these pipelines may require a purchased gas adjustment.

1/ All prices and quantities are from Energy Information Agency draft data. They reflect interstate pipeline average wellhead purchase prices, excluding prior period surcharges and cost of imports.

2/ Prices are unadjusted for inflation.

THE NATURAL GAS MARKET

(SCHEMATIC)



WELLHEAD PRICE
NGPA

TRANSMISSION COSTS
FERC

END-USE PRICE
PUCs

$1.25 MCF OLD GAS

$3.00 MCF NEW GAS

$7.25 MCF DEEP GAS/ TIGHT SANDS

$5.00 MCF IMPORTS

LNG

ALL OTHERS

AVERAGE WELLHEAD PRICE $2.75 MCF

OTHER COSTS + RETURN = $1.00

AVERAGE CITYGATE PRICE $3.75 MCF

DISTRIBUTION COMPANY

AVERAGE RESIDENTIAL PRICE $5.50 MCF

AVERAGE INDUSTRIAL PRICE $4.00 MCF

AVERAGE PRICE TO UTILITIES $3.75 MCF

PRICES ARE REPRESENTATIVE FOR
PRESENTATION PURPOSES AND DO
NOT REFLECT PRECISE ESTIMATES.

U.S. DEPARTMENT OF ENERGY

The CHAIRMAN. Thank you very much, Mr. Secretary. Mr. Chairman, your full prepared statement will be placed in the record, and you are invited to proceed in any manner you wish.

STATEMENT OF HON. C. M. BUTLER III, CHAIRMAN, FEDERAL ENERGY REGULATORY COMMISSION

Chairman BUTLER. Thank you very much, Mr. Chairman. My oral remarks will be relatively brief and I think it will be obvious when I make them that Secretary Hodel and I are largely in agreement as to where the major issues that we should discuss this morning are.

I intend also to talk about old gas in particular. I would like to make several points. The first is that there seems to be unanimous agreement among virtually all observers of this process and this problem that the real issue in the natural gas markets is price.

The second point is all of the proposals that have been submitted for consideration by the House and the Senate tend to do two things. First, they address the problem of price. Second, they propose some kind of a solution to the so-called contracts problem.

The principal area of conceptual disagreement is over the question whether old gas should be deregulated. These oral remarks are intended to explain why I believe that old gas price deregulation is a necessary component of legislation intended to restore order to the natural gas markets.

First, one argument I suppose, or factor in favor of that proposition, is that, as has been explained before this committee and committees of the House on numerous occasions, the Natural Gas Policy Act and its continued regulation of old gas prices results in a system of price supports that permit pipelines to pay above-market prices for gas.

Now what that suggests is two things. The alternatives are either that you have a system in which natural gas pipelines are prevented from paying above market prices and cash flows to producers are commensurately reduced, or alternatively you allow the price supports implicit in old gas price controls to go to producers of high-cost gas, whether that is foreign gas or domestic gas.

You can't have it both ways, as is pointed out in the testimony. A dollar of that income either goes to producers or it goes to consumers. It can't go to both.

Now it is my view that the prices that are being paid for high-cost gas are far too high, and it is also my view that the prices being paid for imported gas are far too high. They are largely price supported by continued controls on old natural gas.

The second point that I would make is that the old natural gas cushion is unevenly distributed among pipelines. That results in a number of perversions and arguably, I believe, anticompetitive results. First in that connection, to the extent that pipelines are unevenly endowed with a share of the cushion, they are advantaged in bidding for new gas supplies.

At the other end of the pipeline, at the distribution end, the distribution companies are disadvantaged or advantaged depending upon which pipeline serves them. An example of this becomes I think dramatic. It is illustrated by two pipelines that serve Senator

Bradley's State of New Jersey—Transco and Texas Eastern. The difference in the pipelines purchase gas costs is on the order of a dollar. What that results in is local distribution companies arguing among themselves whether or not they should be able to terminate their contract suppliers in order to take advantage of low-cost supplies provided by competing pipelines. We have at least one application in front of the Commission at this time. It was submitted by Central Illinois Light Co., asking us to allow them to change pipeline companies from Panhandle, which is a high-cost supplier, to National, which is a low-cost supplier.

The predatory pricing practices are very similar to the kind you find in an unregulated market where for one reason or another a statutory advantage or some other kind of advantage is obtained by one supplier in the market.

The third point is that to continue to control old gas prices and to disallow the payment of higher than market prices to producers results in a lower than average cost, which means that our policy then is to subsidize gas prices as opposed to competing with oil, crude oil prices. There is a substantial question to be raised whether that is appropriate public policy in an environment in which we have attempted to discourage imports and rely on domestic supply of energy.

A fourth point, as was pointed out by the Secretary, is that continued price controls on old gas tend to lead to an early abandonment of old gas in existing fields. The evidence is that we can expect, as he also pointed out, both in his testimony and his oral remarks, an increase in section 104 gas on the order of 2.1 trillion cubic feet as a result of a repeal of price controls on old gas. We have some experience to draw on in that connection, and that is in connection with old oil. The statistics that the Department of Energy has compiled indicate that as a result of deregulation of old oil, we have found 330 million additional barrels. You couldn't find anywhere in the country any commentator who would argue during the debate in that connection that we would find any more old oil. They claimed there was none there to be found.

Well, they were wrong then and I believe that they are wrong now. A corollary of this problem, which is point No. 5, is that to the extent that we continue to skew prices in the direction of high-cost supplies we tend to carry on a misallocation of drilling funds for higher cost gas supplies which in the end is going to disserve consumers.

Finally in that connection, a policy which continues price controls on old gas and refuses to allow payment above market prices to producers tends to reduce or will reduce the cash flow available to producers to continue to drill which quite probably, and I don't say possibly, but quite probably will lead to future shortages. The consequence is we may very well have the spector of rationing to look at again sometime in the future.

The last point that I would like to make deals with the argument that producers will not renegotiate their contracts under the administration's proposal. I think that is wrong. I think there are substantial pressures on producers to renegotiate. First with respect to old gas, the deliverability surplus means that their cash flows are down. They want cash now, and I think that they obviously have an interest in renegotiating old gas contracts up.

On the other hand, the discount rate is very high. It tends to make waiting not worthwhile for producers. Finally, it is easier to negotiate, as a general proposition, with the current buyers than it is with new ones simply because the relationships are established.

With respect to new gas, if you expect the surplus deliverability to extend to 1985, the question then is what is to be gained by a producer by marketing out in what amounts to a soft market? Also with respect to new gas there is a question, and it goes something like this. The producers know the pipelines will not have a large enough cushion to support levels at above market prices. The question then becomes what can they expect to gain? Above market prices, as we have seen in our current experience, lead to the loss of markets and the loss of pipelines' market after all is also the loss of the producers' market, so clearly it is not in the producers' interest to wait to renegotiate either high-cost contracts or low-cost contracts.

That concludes my oral remarks, Mr. Chairman. I will be happy to try to answer questions.

[The prepared statement of Chairman Butler follows:]

STATEMENT OF
C. M. BUTLER III
CHAIRMAN, FEDERAL ENERGY REGULATORY COMMISSION
BEFORE THE
COMMITTEE ON ENERGY AND NATURAL RESOURCES
UNITED STATES SENATE

April 6, 1983

MR. CHAIRMAN AND MEMBERS OF THE COMMITTEE:

I appreciate this opportunity to discuss with you legislative proposals designed to reduce current natural gas prices and establish a rational, well-ordered natural gas market.

The central issue in the current natural gas debate is price. Other issues may have equal long-term importance. The creation of a contract carrier obligation for pipelines could offer both buyers and sellers of gas far broader market opportunities and could work major changes in the natural gas industry; changed rules governing intrastate pipelines' access to gas may affect the allocation of gas among pipelines and among regions. But natural gas policy is today again a matter of active public debate principally because prices have been rising rapidly, and because they have continued to rise in the face of an increasing gas surplus.

Today I want to discuss the Administration's response to the price problem. This response can be briefly stated. The price of gas should be high enough to balance supply and demand, but no higher. For interstate pipelines, cost-based price regulation would continue to be the principal means to that end, although price regulation would be supplemented by increased competition where that is feasible. For wellhead prices, however, the existing combination of price ceilings and rigid contractual provisions would be replaced by market forces.

This response presents three basic questions. First, would a rational market-clearing price be lower than the average price set by the NGPA and existing producer-pipeline contracts? Second, is the Administration's proposal likely to lead to such a market-clearing price? Third, would the national interest and the interests of consumers be better served by legislation that reduced the price of some categories of gas but did not decontrol old gas?

I believe that the answer to the first question clearly is yes. I believe that the answer to the second question also is yes, although some changes in the details of S. 615 may be appropriate. I believe that the answer to the third question is no.

That market-clearing prices would be lower than today's prices should now be beyond reasonable debate. Reports of fuel switching are widespread and persuasive. The precise amount of sales lost to alternative fuels is in doubt; but the fact that sales have been lost is not, and other markets are now being retained by only a thin margin. The supply of natural gas will be adequate to serve these closely competitive markets even after economic recovery increases demand. In a rational competitive market, natural gas would be priced low enough to retain existing competitive markets and to regain those that have been lost.

This conclusion is confirmed by reports that new supplies of natural gas are being purchased at prices below most pipelines' average gas cost. It is also confirmed by calculated estimates of the current economic value of natural gas. In my answers to this Committee's questions, I estimated that value at about $2.90 per Mcf. That estimate was based on competition with high-sulfur No. 6 fuel oil and an $.80 cost for getting the gas from wellhead to burner-tip. A similar estimate can be derived based on a lower sulfur fuel oil and higher transmission and distribution costs.

Table I attached to this testimony compares interstate pipelines' current gas costs with this $2.90 estimate. Current gas costs exceeds $2.90 for 13 of the 20 major interstate pipelines. This comparison reflects current natural gas and oil prices. Under existing rules, natural gas prices will almost certainly go up in the future. Unless conditions change, oil prices probably will come down. Twenty-five dollar oil would reduce the market value of natural gas to about $2.40. Nineteen of the 20 major pipelines now have gas costs above that level, and in several cases the difference exceeds a dollar. Further automatic increases in gas costs under the NGPA would only widen the difference.

It is possible to disagree about the precise assumptions on which these calculations are based, but I do not see how the basic conclusions can be disputed. Natural gas consumers are now paying prices that are too high not just by some standard of fairness but by the standards of a rational market. This conclusion sharply narrows the range of policy debate. It means that the average natural gas consumer would benefit from the substitution of rational market prices for the prices now determined by statutory and contractual provisions. The questions that remain for debate are: Is S. 615 likely to lead to rational market prices? And would some basically different alternative better serve the national and consumer interests? I want to turn now to those two questions.

The problem of achieving rational market prices consists of two parts. One part is the problem of assuring that reasonable prices are set in the future. To accomplish this, pipelines must have adequate incentives to negotiate vigorously on consumers' behalf. The second part of the problem is to correct the errors of the past. This is essentially a problem of replacing the statutory and contractual rules now governing natural gas prices with ones that are more responsive to market forces.

At present, pipelines have an immediate incentive to minimize costs because, once rates are set, reduced costs means higher returns until the next rate case. With respect to purchased gas costs, however, there is the danger that over the long run pipelines may be largely indifferent to keeping costs low enough to avoid loss of sales to No. 6 fuel oil if -- and I emphasize the "if" -- they are allowed to recover their costs from the remaining, much smaller, market.

Increased competition among pipelines may offer one way of ensuring that consumers are not burdened with unnecessarily high purchased gas costs. The Commission is exploring ways of promoting increased flexibility in the transportation and sale of gas, and S. 615 would move substantially further in that direction. Even where competition is not feasible, however, I believe that pipeline regulation can be used to provide incentives. For example, through the ratemaking process, the Commission can, as it indicated last November, provide incentives for pipelines to keep their purchased gas costs competitive with alternative fuels. The Commission can also re-examine the role and function of minimum commodity bills which may unduly insulate pipelines from market conditions.

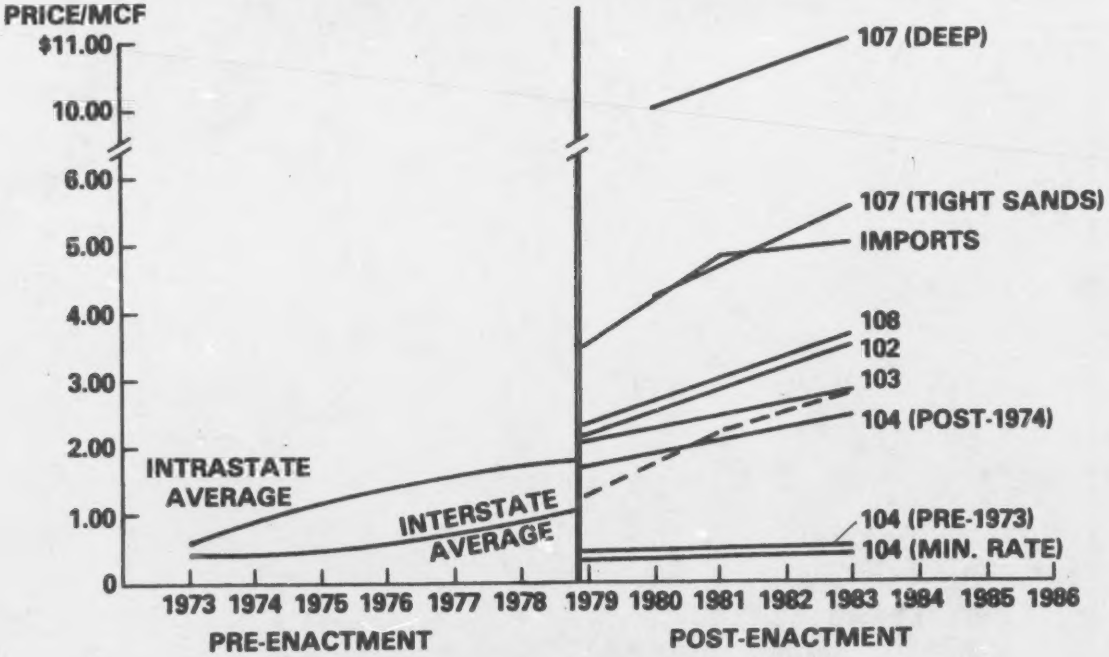
In all these areas, the Commission's basic legal authority is clear. The problem of correcting past errors is more difficult, and its solution lies largely beyond the Commission's present authority. The producer-pipeline contracts now governing natural gas are insufficiently responsive to market conditions. They must be changed. The Commission cannot change them except in relatively minor respects. Producers and pipelines may modify them through renegotiation within the existing statutory framework, but so far there has been very little price renegotiation. For the Congress, the choice therefore is posed: either gamble that producers and pipelines will do in the future what they have failed to do in the past; or intervene to modify the existing pricing rules.

The Administration's proposal adopts the second alternative. S. 615 would modify the pricing rules in four ways: a new and market-based price ceiling, called the gas cap, would be imposed on most gas; the price of the most costly domestic gas would be frozen at the pre-enactment level; a limit on take-or-pay obligations would give pipelines greater flexibility to purchase gas from lower cost sources; and both pipelines and producers would gain statutory market-out rights in 1985.

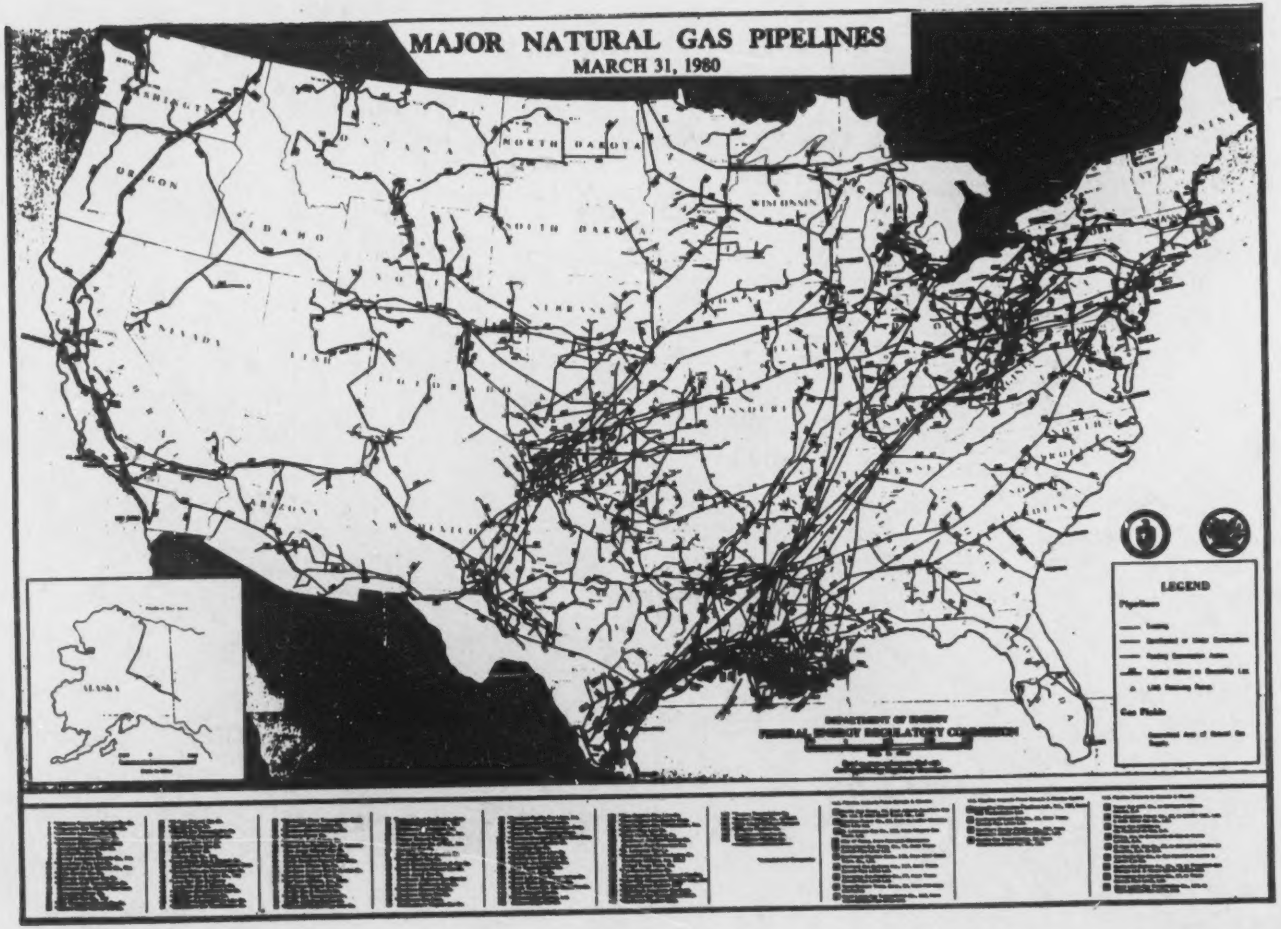
The most important of these modifications are the gas cap and the reciprocal 1985 market-out rights. The freeze on Section 107 prices would prevent some prices from going up. However, average Section 107 prices have been essentially stable since mid-1981 and have actually declined in recent months. It is not possible to estimate the impact of the freeze, but it is likely to be small. The limitation on take-or-pay obligations would be more significant. In my answer to this Committee's questions, I estimated that it would reduce average interstate gas costs by 8¢ per Mcf during the first year and somewhat more than that in subsequent years. It

NATURAL GAS PRICE PATH

NATURAL GAS POLICY ACT



NATURAL GAS POLICY ACT


MAJOR NATURAL GAS PIPELINES
MARCH 31, 1980
WASHINGTON
OREGON
IDAHO
MONTANA
NORTH DAKOTA
SOUTH DAKOTA
NEVADA
UTAH
COLORADO
ARIZONA
NEW MEXICO
NEBRASKA
MISSOURI
WISCONSIN
MAINE
ALASKA
LEGEND
Pipelines
Gas Fields
DEPARTMENT OF ENERGY
FEDERAL ENERGY REGULATORY COMMISSION

was necessary to base this answer on relatively arbitrary assumptions, but the basic conclusion appears sound: the limitation on take-or-pay would allow a small but noticeable decrease in average gas costs.

The principal direct impact of the provision would come from the gas cap and the reciprocal market-out rights. Those provisions would in turn establish a framework within which substantial price renegotiation is likely to occur between now and 1985. The principal impact of S. 615 thus would occur in three stages: an initial price reduction resulting from the gas cap and the limitation on take-or-pay obligations; a process of price renegotiation running until 1985; and the exercise of statutory market-out rights by pipelines and producers in 1985.

In my answer to this Committee's question, I estimated that the gas cap would be around $2.90. This estimate was based on what appears to be the most obvious literal reading of Section 301 of S. 615. Under this reading, the cap would be based on the total cost of gas to pipelines under new and renegotiated contracts, but the limitation imposed by the cap on existing contracts would apply to the total cost less severance taxes and production-related costs. These latter cost items could be added to the cap to determine the total price that pipelines could lawfully pay.

Under this interpretation the gas cap would have an upward bias. If pipelines were currently paying $2.90 per Mcf in new and renegotiated contracts, the gas cap would allow them to pay $2.90 plus severance taxes and production-related costs under existing contracts. As I noted in my answer to this Committee's question 19, this inconsistency could be avoided in two ways. Section 301 could be interpreted to exclude severance taxes and production-related costs from the measurement of the gas cap; or the gas cap could be applied to the total cost of gas, including severance taxes and production-related costs. Under either of these interpretations or modifications, the impact of the gas cap would be substantially increased. In Tables II and III this impact is calculated based on current world oil prices and on $25 oil. The cap would immediately save natural gas consumers about $2.58 billion per year even with current oil prices. With $25 oil, the initial annual savings would be $4.50 billion.

These savings assume that the gas cap would accurately reflect the real economic value of natural gas. As I indicated in my testimony before this Committee on March 12, I am concerned that the inclusion of renegotiated contracts in the measurement of the cap may distort it, probably in a downward direction. I also am concerned that the cap may be very volatile due to the relatively small volume of sales on which it is based. I therefore would recommend that renegotiated contracts be excluded from the cap and that its volatility be reduced. The latter might be accomplished either by increasing the number of months included in the cap or by limiting the amount by which the cap could change each month.

Even without any clarification or modification, the gas cap would make the price of important categories of gas more responsive to market conditions than they are under existing legal rules, and more responsive than they would be under any fixed statutory price formula. This would be true of new gas and gas from new onshore wells (Sections 102 and 103). It would also be true of most old intrastate gas (Sections 105 and 106(b)), which generally is priced at the Section 102 level, and of gas from stripper wells (Section 108) and the miscellaneous categories governed by Section 109.

The price of three categories of gas would not be determined by the cap. Imported gas and Section 107 gas are excluded from the cap as a matter of law. Old interstate gas (Sections 104 and 106(a)) are legally subject to the cap. However, existing NGPA ceilings for this gas are likely to be lower than the cap, and the price therefore would in practice continue to be determined by those ceilings.

S. 615 implicitly leaves the problem of over-priced imported gas to resolution through international negotiation. Domestic gas governed by Section 107 and by Sections 104 and 106(a), on the other hand, will be subject to market-out by pipelines or producers in 1985, and the prospect of that market-out will provide the principal impetus for renegotiation between now and 1985.

Because of this interrelationship, the renegotiation process is best understood by beginning with the way in which pipelines and producers are likely to exercise their market-out rights in 1985. In theory, the reciprocal exercise of market-out rights would establish a relatively uniform nationwide price. With respect to high-cost gas, a pipeline that exercised its right at a lower price than other pipelines would risk losing reserves. With respect to low-cost gas, a producer that demanded a price higher than the going rate would be unable to find another buyer.

In practice, market-outs are likely to establish a range of prices. Negotiation of a contract with a new buyer or seller would take time and money, and for the producer, changing buyers also would involve additional transportation costs. In addition, gas reserves do not all have the same intrinsic values. The largely depleted reserves characteristic of old gas generally have less value to a pipeline than reserves qualifying for one of the higher NGPA price categories. It appears that the net result of these factors would be that old gas producers would generally exercise their market-out right at a price below the market-clearing level, while pipelines are likely to market-out high-cost gas somewhat above that level.

Pipelines and producers thus would have two choices between now and 1985. One is to leave the existing contract in force until 1985 and then accept the results of the market-out process. For old interstate gas, they should expect that result to be a below-market price; for high-cost gas they generally should expect it to be an above-market one.

The other alternative is to renegotiate the contract, thereby terminating the parties' statutory market-out right. For a high-cost producer, the advantage of not renegotiating is that he can continue to benefit from the existing price terms until 1985. In 1985, however, he must expect that his price will be reduced close to the market-clearing level. For the pipeline buying his gas, failure to renegotiate means that it must continue paying the high price until 1985, but that it can then expect to reduce the price close to the market-clearing level. Given those trade-offs, the basis for renegotiation would be a price below the present one but higher than the producer could expect to receive after 1985.

Renegotiation of low-cost contracts would work in the same way, but with the parties' positions reversed. For the producer, renegotiation would mean a higher price now but the loss of the statutory market-out right in 1985. For the pipeline, it would mean paying a higher price now in return for being able to avoid the producer's later market-out. The renegotiated price therefore would be higher than the current one but lower than the producer could expect to obtain in 1985.

The reciprocal market-out rights in 1985 and the renegotiation process that those rights would encourage therefore are not likely to lead to uniform natural gas prices. Low-priced gas will tend to be priced somewhat below the market-clearing level; high-cost gas will tend to be priced somewhat above that level. Accordingly, deep-cushion pipelines will generally continue to have average gas costs somewhat below average, and shallow-cushion pipelines will generally have average costs somewhat above average. However, the differences in natural gas prices and in gas costs between pipelines will be much smaller than they are today and will be much closer to the economic value of natural gas.

Two potential concerns have been expressed with respect to the 1985 market-out as a mechanism for bringing natural gas prices nearer to the market-clearing level. The first is that some producers may have an incentive to withhold natural gas production between now and 1985. For producers of old gas priced below a certain level, the prospect of selling the gas at a price near the market-clearing level in 1985 in theory creates an incentive to delay production. The practical importance of this incentive is limited, however. Only gas from pre-1973 interstate wells is now priced low enough to make it worthwhile, even in theoretical terms, for a producer to withhold production in anticipation of a higher price in 1985. Because this gas is still dedicated to interstate commerce, producers could not lawfully halt production without obtaining the Commission's approval for abandonment of the wells. Their legal duty under the Natural Gas Act is reinforced by legal obligations to landowners and other interests and by practical problems of current cash flow and drainage. It is not possible to state confidently that no producer would reduce his production in anticipation of a 1985 market-out. It is possible to state that the problem of withholding production does not now appear to be a major one.

The second potential problem is that the exercise of market-out rights by producers in 1985 may temporarily overload pipelines' ability to negotiate contracts with new sellers. This again is primarily a problem of the low-cost contracts. The amount of gas covered by high-cost gas contracts is relatively small, and much of that gas is subject to contractual market-out rights that should allow pipelines to adjust the price well before 1985. For the low-cost contracts, the problem would be substantially mitigated by the 45-day notice requirement imposed by S. 615, and it would disappear altogether if the prospect of the 1985 market-out caused pipelines and producers to renegotiate their contracts before that date.

These potential problems cannot be entirely dismissed. Their importance should not be overstated, however. They will arise only to the extent that pipelines and producers do not renegotiate their contracts between now and 1985, and S. 615 creates a powerful new incentive for renegotiation. If additional safeguards are thought necessary, they can be provided within the general framework of the Administration's proposal.

Above all, I urge that such problems not be used as an excuse for inaction. I would like to repeat here what I said in my March 12 testimony: It is imperative that the Congress not delay action while it searches for an easy and painless solution to the current natural gas problem. No such solution exists.

I want to turn now to the third basic question presented by the Administration's proposal: Whether the national interest and the interests of consumers would be better served by legislation that differs from the Administration's proposal, not just with respect to the technical details that I have been discussing, but in its basic approach. Numerous natural gas proposals have been submitted. On the fundamental issue of price, however, the alternative to the Administration's proposal appears to be fairly represented by the proposal recently put forward by Senator Metzenbaum and a number of other senators. On price, this proposal differs from S. 615 in two basic respects. First, it would reduce the price of the higher-cost

NGPA categories through a fixed statutory formula rather than through a market-based gas cap. And second, it would not decontrol old gas.

The problem with the first half of this proposal is not that it would roll prices back. For the higher-priced NGPA categories such a rollback is desirable. The problem lies in the method by which the rollback would be achieved. NGPA price ceilings would be rolled back to their August 1982 level. For Section 102 gas, that would be $3.18; for Section 103 it would be $2.66. But since NGPA price ceilings do not apply to severance taxes or production-related costs, the effective limit on total gas costs probably would be around $3.60 for Section 102 gas and around $3.10 for Section 103 gas. These prices exceed the value of natural gas even without any further decline in world oil prices, and they also exceed the amount that pipelines would have to pay for this gas under S. 615.

The solution to this problem is not to impose an even larger arbitrary price rollback. We do not know whether oil prices will decline further. If they do decline, we do not know how far the decline will go. Twenty-five dollar oil is plausible, but $20 oil is not impossible. Even if we were certain of future crude oil prices, we still would be uncertain about the market value of natural gas. The $2.90 estimate that I have made here is based on the current price of residual oil, the problem with which natural gas now generally competes at the margin. The relationship between crude oil prices and the price of residual oil can vary substantially from time to time. As a result, there is no fixed relationship between the price of crude oil and the market value of natural gas.

The Administration's proposal avoids this problem by basing the rollback on the prices to which pipelines and producers are agreeing in today's market. The gas cap mechanism is not perfect. I have suggested certain ways in which it might be changed. But even in its present form it is far more likely to produce rational prices than an arbitrary rollback based on current legislative estimates of the value of natural gas.

If price is the central issue of the natural gas policy debate, the decontrol of old gas is the most disputed part of that issue. Price controls inevitably distort decisions. In some cases the distortions may be preferable to the alternative; this may be true where the unregulated price would be set by a seller with monopoly power. But natural gas producers do not have monopoly power; natural gas production is among the most competitive of United States industries. Continued price controls on a substantial part of the natural gas supply bring the average consumer neither greater supply nor lower prices. Controls do benefit some consumers. But they do so only at the cost of burdening others. Their principal effect is to increase the quantity of national resources that must be expended in producing natural gas, and to make it substantially more difficult to increase competition in the natural gas industry.

The arguments against decontrol of old gas proceed along two lines. One argument is that old gas decontrol will directly increase the cost of gas to consumers. The other is that it will reduce the supply of gas. I believe that both arguments are wrong. I will explain why in a moment. First, however, I would like to observe that they cannot both be altogether correct, because they are mutually inconsistent.

The first argument assumes that pipelines will not pay more than a market-clearing price for deregulated and imported gas. The benefits of price controls thus are passed directly through to consumers, and elimination of price controls would result in higher burner-tip prices. The second argument assumes that pipelines will use their cushion of price-controlled gas to support above-market prices for decontrolled gas and imports. Decontrol therefore would result in the loss of a part of the subsidized supply.

The two arguments are in essence arguments about where that natural gas cushion goes, and about where it should go. The first argument assumes that the cushion goes to consumers, and that natural gas prices should not exceed the market-clearing level. The second argument assumes that it goes to other natural gas producers and to foreign exporters, and that subsidized natural gas prices are desirable.

The natural gas cushion is in effect a fixed sum of money. A dollar of the cushion can go to consumers or it can go to producers; it cannot go to both. And regardless of where the cushion goes, subsidized prices either are desirable or they are not. If they are desirable, opponents of decontrol should applaud pipelines that pay above-market prices for decontrolled and imported gas. If they are not, they should abandon at least the supply argument against decontrol of old gas.

I believe that the supply argument against decontrol is correct in its initial assumption. The natural gas cushion is used today principally to subsidize higher-cost gas. Once this high-cost gas consisted of imports and deregulated domestic gas. Today it includes Section 102 and Section 103 gas as well. As a result, on most pipelines the natural gas cushion is now fully absorbed in supporting these above-market prices. The price rollback proposed by Senator Metzenbaum and others would restore some part of the benefit to consumers, but the restoration would be only temporary. The benefit would disappear again immediately if oil prices declined substantially; even with the rollback, average gas costs for most pipelines would again be above the market level. The benefit would disappear eventually even if oil prices remain stable or increased. The prospect of a larger cushion would enable pipelines again to increase imports and purchased of Section 107 gas, and to turn again to synthetic gas and other unconventional sources.

Over the long run, the cushion could be preserved for consumers only if regulation closed off all avenues for pipelines to pay above-market prices for some categories of gas. This was not done under the Natural Gas Act. It is not done under the NGPA. It would not be done under Senator Metzenbaum's proposal. It _is_ effectively done by S. 615. The Administration's proposal would enable pipelines to bring the cost of all domestic gas to near market levels by 1985. And the prospect of a rational and market-based domestic price structure would provide the strongest possible incentive for the renegotiation of the prices governing natural gas imports.

The consumer price argument against decontrol of old gas thus fails on its initial assumption. The supply argument fails for other reasons. Price controls do subsidize other natural gas production, both domestic and foreign. But that subsidy yields little in the way of extra gas, and whatever additional gas it does provide carries a high direct and indirect cost.

Price controls do increase the supply of natural gas from the subsidized sources. In late 1981, the Department of Energy's Office of Policy, Planning and Analysis compared complete decontrol on January 1, 1982 with the NGPA's 1985 partial decontrol under what were viewed as low oil price assumptions: that oil would sell for approximately $36.45 per barrel in 1985, measured in 1982 dollars.

Under the NGPA's partial decontrol, the price of the gas that was decontrolled was projected to be about $1.95 higher than under complete decontrol. Oil price assumptions have changed since 1981, and additional analytical work has been done. But the 1981 projection serves to make the basic point. Decontrolled gas will be more costly under partial decontrol than under complete decontrol, and a higher price can be expected to bring forth some additional supply from the decontrolled sources.

That additional supply is not simply a net gain, however. It has to be balanced against the supply that would be lost by not decontrolling old gas. In geological terms, a natural gas reservoir has a fixed amount of gas, and no more. In economic terms, the amount of gas effectively available from a reservoir depends on price.

There are a number of techniques for boosting old reservoirs recovery potential. All cost money, and the degree to which they are used thus depends on the price of the additional gas they produce.

For instance, producing wells may be deepened or plugged back to richer producing zones at a typical cost of $50,000 to $100,000. Or the well bore may be given more perforations, at a cost of $25,000 to $50,000. In the $50,000 to $500,000 range, a producer can completely rework a well, fixing leaks and replacing the damaged tubes that cut output. And adding compression, at about $1,000 per horsepower, allows drawing gas at lower bottom pressures.

These are standard, frequently used techniques for improving well productivity. Whether they are used in a particular field depends on a comparison of their cost with the value and volume of gas they produce. Complete decontrol of old gas would make it profitable for companies to use these and other techniques in reservoirs where they are not now economically justified. The amount of additional gas that would be produced is substantial. I do not know whether it would be as large as the amount that would result from subsidizing some categories of gas by retaining price controls on other categories. If not, however, the supply gain from continued controls is at least not likely to be large, and it must be balanced against two major costs.

The first and obvious cost is the amount of resources needed to produce the nation's gas supply. The gas produced as a result of the subsidy will be gas that would not have been profitable at a price limited by market forces. If producers expect the price of natural gas to be $3.00, they will only undertake projects expected to cost less than $3.00 per Mcf. The average cost of producing the gas -- the average amount of national resources used in providing consumers with natural gas -- thus would be somewhat less than $3.00. If continued partial price controls allow producers to expect a price of $4.00 instead of $3.00, the additional gas produced will be from sources with production costs in the $3.00 to $4.00 range. On the other hand, the additional production gained through complete decontrol would come from projects that can be undertaken at a cost less than $3.00 per Mcf.

This is not a good bargain for the nation. It is not even a good bargain for natural gas consumers in the most direct and immediate sense. If continued price controls do increase the supply of gas, the market-clearing price should in theory be slightly lower. In this indirect way, consumers would receive a benefit from the natural gas cushion. At the same time, however, consumers would be deprived of the benefits of increased competition between pipelines.

Effective competition between pipeliens is virtually impossible so long as price controls hold large amount of natural gas below the market level. The Commission has so far confronted this problem principally in proposed sales by interstate pipelines to markets served by intrastate pipelines, but the problem is beginning to emerge within the interstate market as well. Pipelines with large cushions of price-controlled gas are able to offer a price that cannot be matched by shallow-cushion interstate and intrastate pipelines. The deep-cushion pipelines' lower price does not reflect smaller profits or greater efficiency. It reflects the artificial advantage given them by the current regulatory structure.

Price competition under these circumstances is closely similar to predatory competition among unregulated firms. In both cases, consumers may be offered a lower price in the short term, but the long-term impact is merely to eliminate a potentially effective and efficient competitor. The long-run consequence therefore is likely to be higher prices rather than lower ones.

For competitive sales that fall within the Commission's jurisdiction, special price rules could in theory be used to offset the artificial advantage. In practice, this has proved to be at least very difficult and perhaps impossible. The facts are complex, and establishing the proper price differential in a hearing is likely to delay a sale so long that the commercial opportunity is lost.

There is a nice irony in this. The benefits of a price regulation that was sincerely intended to help consumers have proved to be large illusory. At the same time, the price regulation now prevents us from giving consumers the real and substantial benefits of increased competition.

Free markets are not the sovereign remedy for every problem and every situation. Pipelines should not be deregulated; neither should distribution companies. But where the industry is competitive and complex, it is very unlikely that regulation will improve on the performance of a free market. There may be exceptions to this principle. All our experience teaches that natural gas production is not one of them.

TABLE II

AGGREGATE REDUCTION IN PAYMENTS FOR NEW GAS
(Million of $)

PIPELINE	IF GAS CAP IS ASSUMED TO BE	
	$2.50	$2.00
CITIES SERVICE GAS CO.	73.87	122.87
COLORADO INTERSTATE GAS	55.84	99.11
COLUMBIA GAS TRANS.	220.46	382.50
CONSOLIDATED GAS SUPPLY	55.78	93.82
EL PASO NATURAL GAS	227.24	442.93
FLORIDA GAS TRANS.	24.36	41.21
KANSAS-NEBRASKA NATURAL	11.22	21.99
MICHIGAN-WISCONSIN P.L.	110.71	189.48
NATURAL GAS P.L. CO.	161.01	280.94
NORTHERN NATURAL GAS	147.65	266.15
NORTHWEST P.L.	36.21	79.33
PANHANDLE EASTERN P.L.	73.87	158.99
SOUTHERN NATURAL GAS	137.47	230.28
TENNESSEE GAS P.L.	243.47	410.32
TEXAS EASTERN TRANS.	107.09	178.86
TEXAS GAS TRANS.	71.40	131.57
TRANSCONTINENTAL GAS	391.87	630.22
TRANSWESTERN P.L.	70.21	133.22
TRUNKLINE GAS	136.13	222.60
UNITED GAS P.L.	224.18	383.38
TOTAL	2,580.04	4,499.77

The gas cap is assumed to be based on gas costs under new and renegotiated contracts less $0.40 for severance taxes and production-related costs. The $2.50 cap assumes a market price of $2.90, based on current residual oil prices. The $2.00 cap assumes a market price of $2.40, based on $20.00 per barrel crude oil.

TABLE III

REDUCTION IN PURCHASE COST OF "NEW" GAS
(dollars per mcf)

PIPELINE	IF GAS CAP IS ASSUMED TO BE	
	$2.50	$2.00
CITIES SERVICE GAS CO.	.179	.297
COLORADO INTERSTATE GAS	.162	.288
COLUMBIA GAS TRANS.	.244	.424
CONSOLIDATED GAS SUPPLY	.103	.173
EL PASO NATURAL GAS	.208	.406
FLORIDA GAS TRANS.	.124	.209
KANSAS-NEBRASKA NATURAL	.120	.236
MICHIGAN-WISCONSIN P.L.	.185	.316
NATURAL GAS P.L. CO.	.162	.283
NORTHERN NATURAL GAS	.230	.415
NORTHWEST P.L.	.126	.277
PANHANDLE EASTAERN P.L.	.107	.230
SOUTHERN NATURAL GAS	.258	.432
TENNESSEE GAS P.L.	.215	.362
TEXAS EASTERN TRANS.	.115	.191
TEXAS GAS TRANS.	.112	.207
TRANSCONTINENTAL GAS	.397	.638
TRANSWESTERN P.L.	.178	.337
TRUNKLINE GAS	.238	.389
UNITED GAS P.L.	.269	.461
NATIONAL AVERAGE	.201	.351

The gas cap is assumed to be based on gas costs under new and renegotiated contracts less $0.40 for severance taxes and production-related costs. The $2.50 cap assumes a market price of $2.90, based on current residual oil prices. The $2.00 cap assumes a market price of $2.40, based on $20.00 per barrel crude oil.

The CHAIRMAN. Thank you very much. We will try to operate on the 10-minute rule for the first round of questions and then perhaps we will be able to stretch the time for the members who are present.

You testified, Mr. Secretary, that in the first year after enactment of S. 615 average wellhead prices would decrease. That estimate appears to be based on two reasonable assumptions. First, there would be a minimal increase in old gas prices because very little gas will be affected by contract renegotiation during the first year, and second, that pipeline purchases of high-cost gas will be substantially reduced because of the 70-percent take-or-pay limitation.

You have indicated again this morning that you believe that there would be a price decrease, and I assume that price decrease would occur within the period of time covered by this bill and prior to January 1, 1986.

Secretary HODEL. Yes. That is correct, Mr. Chairman.

The CHAIRMAN. What is your estimate of what will happen to gas prices in the second and third year after enactment when producers of old gas would have the right to terminate their contracts and seek higher prices and after the PGA passthrough limitation is lifted?

Secretary HODEL. In the second year, when the PGA passthrough limitation has not yet been lifted, any increases which would be above the allowable rate would have to go through a Federal Energy Regulatory Commission proceeding and would, therefore, to some extent be slowed down. Those would be public proceedings and there is the opportunity for States, as they have indicated to say they would intend to intervene in such proceedings. So during that period of time there would be a slowdown of any passthrough that might otherwise have to take place.

Our analysis would indicate that the initial drop in price of gas as we forecast in our analysis, would bottom out at the 10- to 30-cent range and then would begin, over time, moving back toward the prices that are under the NGPA. Our last analysis indicated that the difference over the period I believe through 1990 would be approximately a $7 billion net benefit to the American consumer between the NGPA price levels on this kind of a curve and the prices under our proposal which would be dropped first and then begin moving toward that level.

The CHAIRMAN. I think the point must be reiterated that NGPA does have escalator clauses in it as well as in the contracts. Isn't that correct?

Secretary HODEL. Yes, Mr. Chairman, and the fundamental economic assumption made is that the price of gas will reach for the market level. Whether it is a controlled price or not, it will tend to reach for the market level. For instance, at the present time there are competing fuels, and that is distorting this market as we know because of switchovers from gas to oil. All of these analyses make assumptions about what the price of oil will be. Of course, nobody can tell us what the price of oil will be, but these assumptions on the price of oil are that they either stabilize or it starts back up during this period of time. As it starts back up, it will tend to cause an increased price in the market clearing price for gas.

Under NGPA, what we have seen happening is the low-cost gas has been able to subsidize high-cost gas and all gas comes out at a price approaching the market. The problem at the present time is there is no flexibility in that system, and it is not able to meet the market as the market drops below the present level. As we get past the period of control and substantial decontrol that exists under NGPA, with 50 percent or 40 percent or 30 percent of old gas still being controlled and being used as subsidies for high-cost gas, your economic models will show the two prices being very much on a parallel course from that time forward.

The CHAIRMAN. With respect to gas supply, if indeed prices do fall, the critics charge that there will not be an incentive to produce new supplies.

Mr. Chairman, you referred to that in your oral remarks. You both have referred to gas supply in your prepared remarks, but if I recall the figures correctly, Mr. Secretary, your estimate of additional gas, additional old gas, is 1 to 3 trillion cubic feet, and I think the NGSA estimates is as high as 4.3 trillion cubic feet of old gas to be brought on under this proposal.

These volumes are less than one-fourth of 1 year's production. Is that the range of your predictions, Mr. Chairman, and if these figures are correct, how does that relate to how much might be induced with respect to future production if we had the cushion of old gas prices?

Chairman BUTLER. Well, I think there are two responses to the question, Senator. First, a lot depends on what you do with the revenues that the producers might otherwise obtain if pipelines continued to pay above market prices for gas. If that subsidy remains, I expect that you would see some continued increase in relatively high-cost gas, and the question is whether or not that increase would be higher than it would be absent the subsidy. I don't have hard numbers to go on or an intuitive thought or anything else, but I would suggest this to you. I am not familiar with the study, but EIA looked at whether or not those $6 and $7 and $8 prices were necessary to produce high-cost gas, and the conclusion they came to was that they were not, but that gas prices in the range of $3 to $3.50 to bring that gas on were.

Now on the basis of that, my belief is that it is highly unlikely that that subsidy would bring appreciably larger supplies of gas into the market.

On the other hand, most of the critics of the current pricing regime argue that producers should not get that subsidy but the consumer should. So, in any event, it seems to me that if the administration's legislation, that is S. 615, were to pass, and something were to be done to take those revenues away from producers, you couldn't expect any additional production of high-cost gas. Now that is the first part of the question.

The second part of the question is to put into perspective what the increase in old gas prices in terms of increases in old gas supplies, really means. As you point out, the NGSA figures are about 4.3 trillion. The numbers do, however, in terms of credible industry estimates, go as high as 11 trillion cubic feet. We have to remember that the total base of existing 104 gas is only 60 trillion cubic feet, so the increases which we are really talking about are something on the order of as high as 15 percent or so in that particular category of gas production that we otherwise would not have.

The **Chairman**. Mr. Secretary?

Secretary **Hodel**. As I understand this, Mr. Chairman, in addition to reserves of as much as 11 trillion cubic feet, it could have an annual impact on production in the neighborhood of 2 to 3 trillion cubic feet. If it reached the 3-trillion-cubic-foot level, it would represent 15 percent or so of the amount of gas that is being consumed annually, and that has, I think, two effects.

First of all, it has a leavening effect on the price rise that we talked about. You asked me earlier what happens to the prices. My understanding is that 5 trillion cubic feet added to the reserves of old gas would extend, until 1990, the time when these lines between the price under our proposal and the projected price under NGPA, using similar assumptions, meet. Ten trillion cubic feet would extend it to the middle nineties, 1995, before these lines would meet.

The **Chairman**. When you say the lines would meet, under your proposal the price line would be lower than the NGPA price line?

Secretary **Hodel**. Yes, during these years, and then as I say, they come very, very close together thereafter. From then on tiny adjustments in your assumptions will throw the lines around, but if we use similar assumptions, those lines don't meet until, under the assumption of no additional old gas, after 1986—if you assume 5 trillion cubic feet, 1990; if you assume 10 trillion cubic feet, 1995. But, more importantly, I think we have a very serious credibility problem with the American people as long as we have a gas system which leaves low-cost gas known to exist in the ground when they are seeing prices increase.

A remaining concern, Mr. Chairman, as I have said on a number of occasions, is this has been a very mild winter. People do not look at the average price per unit of gas. They look at their monthly bill. They have had a warm winter. Next year if we have a cold winter constituents around this country are going to ask, Why? This outrage because my bill is now higher than it was last year and I understood I was going to get a price break under the administration bill. Under any of the alternatives, I fear the reductions we are talking about are not great enough to offset a normally cold winter.

The **Chairman**. Maybe you ought to hope then we don't pass the legislation and NGPA gets the credit for it.

Secretary **Hodel**. The thought has crossed my mind, Mr. Chairman.

The **Chairman**. Just one final question, Mr. Chairman, and I think that the latter point is valid because I think the consumer will look at his total bill, not at the unit cost, and with a more severe winter if this legislation passed you have to have some people say, I thought you were going to give me a break but the bill went up, whereas maybe larger consumption, higher consumption, has caused it to go up.

I want to refer again to page 16, the chart to which you referred earlier. That shows a relatively larger decline in the volumes of old gas produced and sold than was expected or was normal, and a relatively higher percentage of high-cost gas than was anticipated actually being produced and sold.

Does that chart show the lack of production activity for old gas, or is it evidence as some people would suspect of producers shutting in supplies of low-cost gas, old gas?

Secretary HODEL. I would suggest, Mr. Chairman, that we see in the high-cost gas the effects of take or pay clauses that have been discussed. We see in the low-cost, the old gas, a combination of circumstances—one, the effect of take or pay clauses on the one hand; and second, a lack of incentive to get that low-cost gas to the market.

The producer doesn't have a tremendous incentive if it is very low price. The pipeline has no incentive—"no" is too strong a word, but the pipeline does not have an adequate incentive, in my estimation, so that combination definitely is working against us. A 10-percent increase is significant, but not overwhelming, and I would think it would be explained by those two circumstances.

The CHAIRMAN. Mr. Chairman, would you have any further comments with respect to what the evidence shows on the chart on page 16 of the Secretary's statement? Does it evidence shut-in capacity or is there a withholding from the market of the old low-cost gas?

Chairman BUTLER. There is no evidence that I am aware of to indicate that there is any withholding from the market. As a matter of fact, it is really inconsistent with the current economic conditions that we are experiencing. We have a surplus of deliverability. Producers are hurting as a result of diminished gas flows, and it is inconsistent to think they might be hurting themselves even more by continuing to withhold from the market. The fact is that markets simply aren't there.

The CHAIRMAN. Senator Ford?

Senator FORD. Thank you, Mr. Chairman. I would like to follow up on the chairman's last question about the activity in so-called lower priced gas. I just want to make a point because it has been indicated by Secretary Hodel that there is no activity, the information I have for the year 1982 are these figures, that 54 percent of the natural gas wells estimated to have been drilled in 1982 were between zero and 5,000 feet. You might want to put these figures down and get your crew to look at them and advise you accordingly. And 30 percent were between 5,000 and 10,000 feet; 13 percent were between 10,000 and 15,000 feet, and only 3 percent were deeper than 15,000 feet, and the percentage was almost the same in 1981—58, 29, 10, and 2 percent, respectively.

Because you have indicated that there is no shutoff of gas drilling occurring under NGPA it is quite obvious that decontrol of old gas is not needed to bring low gas prices on the market if that is the percentage of the drilling and we have a 2-year scenario.

Secretary HODEL. Senator, in my statements with regard to old gas, I am talking about the defined old gas category, 104 gas. My understanding is where a new well is drilled it is not a 104 well, so the figures I was presenting to the committee, the 2½ up to 11 trillion cubic feet, deal with the 104 gas, and the figures that have just been presented to me are similar to the ones that you were presenting, and I have no quarrel with those figures.

Senator FORD. I am reciting from a DOE report.

Secretary HODEL. Then it's a good thing I don't have a quarrel with them.

Senator FORD. I always wait for you to say something and hope that you will make a mistake. You know that. Then I quote your Department.

Chairman BUTLER. You've done that to me, too.

Secretary HODEL. So, when we look at these figures, these wells are in a different category. They would be 102 or 103 or——

Senator FORD. But Mr. Secretary, the point I am trying to make is what you are trying to say is if we deregulate old gas we are going to have an incentive. The incentive is already there based on percentages, only 3 percent for deeper wells and the rest of them are, over half of them are under 5,000 feet.

Secretary HODEL. My understanding is that the price for those categories of gas is above what we think the present market clearing price is, so there ought to be incentive for them to go out and drill those new wells. In fact what we are saying is there is old gas in existing fields which is not coming out of existing wells because they are being abandoned earlier than would be the case if that were not controlled.

Senator FORD. Let me ask you this question then, and it has been something that has bothered me a little bit and I should have asked maybe a tax man, but you two fellows are the smartest people we have in government as it relates to this sort of thing.

When producers abandon a well, can production be taken as sort of a tax writeoff on the reserves abandoned?

Chairman BUTLER. Mr. Secretary——

Senator FORD. Everybody is looking at each other. Can anybody in the crowd help us?

Chairman BUTLER. Senator, if you are asking whether or not they can take a writeoff for reserves in place, not produced, I believe the answer is no, but I cannot tell you that to paralzyed certainly——

Senator FORD. Could you get me that answer? I would appreciate it, because I find when I got on your case pretty good recently that some I guess producers, transmission, distribution systems have been abandoning the old gas and taking all the new gas and keeping their gas high because of that commitment. Now you have got that percentage in place where you are requiring that the percentage of the flow of the pipeline be abandoned based on the ability to produce which I think is fine. It sets the people up for the well and it also has helped with the gas prices to the consumer.

You know, when you are just pumping the high-priced gas, sometimes from yourself, and buying up the low-cost gas, it is a savings, so if you will give me an answer on the tax writeoff, I would like to have it, please, sir.

Chairman BUTLER. Yes, sir.

Senator FORD. Mr. Hodel, on page 10 of your statement, you say the incentives to begin renegotiation process immediately are substantial. You say producers need to maintain their revenues and cash flow.

What about the big oil companies that have the larger percentage of the old gas? What kind of cash flow do they need?

Secretary HODEL. My understanding, Senator, is they have cash flow requirements like all other organizations. Obviously, I am sure the point of your question, and I would agree, is that they have greater flexibility because of the magnitude of cash flows from other resources, but they will do——

Senator FORD. They have always been able to finance internally, too.

Secretary HODEL. They will have the ability to sit down and calculate whether or not it is in their best interest, and I think you would have to project substantial increases in price beyond what we project, with the discount rates that are applicable, in order to justify closing in those kind of wells. Once the well is there, my understanding—and as I have said before in deference to the committee, I have been 4 months in this process so I don't pretend to have a great depth of knowledge—Senator, is once you have a well in place, there is considerable incentive to keep that well operating. If you shut the well down and it deterioriates, you lose, you dissipate some of the gas supply, so they are not in the position simply to say, "Well, we have got a reservoir, all we have to do is hold it for a later time." You have got an investment which has to be recovered and can be recovered with increasing prices, and they will.

Senator FORD. That is just disappearing old gas. Also your statement now is contrary, and I try to keep up with you, on page 16 where you are showing that they are abandoning, it is disappearing.

Secretary HODEL. No, it is not contrary, because what I am saying is, you do not have an incentive today. It is not economical for them to continue those wells in operation. That is precisely the point. I agree with you, what you have suggested by asking the question about taxes. I think that is exactly the right kind of question. If we look at the economics of this market——

Senator FORD. Mr. Chairman, did you hear that? Is that the right kind of question? If I didn't have fun, I wouldn't be here.

Secretary HODEL. It goes to the economic incentives, Senator, and I think you are recognizing, as we recognize, that the lack of economic incentive for pipelines and producers to bring the old gas to the market is what we are trying to deal with through this portion of our proposal.

Senator FORD. You have no knowledge, first of all, you are saying unless you put the squeeze on the pipeline that prices are going to be any better than they are today by deregulating old gas?

Secretary HODEL. With the qualifier you put in there, absolutely not; if no one puts the squeeze on the pipelines, Senator, we will be in exactly the situation——

Senator FORD. Does that seem unfair to you?

Secretary HODEL. What?

Senator FORD. For you to put the squeeze on one; you have three sections of the industry here, and it is in your testimony today. As we talked the other day, you have the producer. You have the pipeline. You have the distribution system. Two of them are regulated. The other one is open, free to do anything they want to do.

Secretary HODEL. It doesn't strike me as being unfair at all, Senator, because what we have had is a two-party negotiation in which the consumer is not represented because of government controls.

TABLE I

Company	Weighted average cost of gas purchased	Amount by which average cost is above (below) market-clearing price of $2.40, based on $25 per barrel oil	Amount by which average cost is above (below) market-clearing price of $2.90, based on current residual oil prices
Cities Service	$2.524	0.12	(0.38)
Colorado Interstate	2.899	0.50	--
Columbia	3.927	1.53	1.03
Consolidated	3.695	1.30	0.80
El Paso	2.827	0.43	(0.07)
Kansas-Nebraska	2.065	(0.34)	(0.84)
Florida-Gas	2.763	0.36	(0.14)
Michigan Wisconsin	3.052	0.65	0.15
NGPL	2.576	0.18	(0.32)
Northern	2.714	0.31	(0.19)
Northwest	3.374	0.97	0.47
Panhandle Eastern	3.188	0.79	0.29
Southern	3.127	0.73	0.23
Tennessee Gas	3.091	0.69	0.19
Texas Eastern	2.966	0.57	0.07
Texas Gas	2.966	0.57	0.07
Transcontinental	3.124	0.72	0.22
Transwestern	3.081	0.68	0.18
Trunkline	4.045	1.65	1.15
United	3.426	1.03	0.53

Senator **Ford**. Every attorney general in this country has a consumer section in his office and he represents the consumer in every public service commission hearing in this country. You have got some of the toughest representatives before public service commissions you ever saw and they are there and they work hard at it, and when they take their political poll, gas is No. 2 on the list. You can bet your sweet bippy that they are there representing their consumer because they are a little bit of a political animal. They have to run for office. They are not appointed.

Secretary **Hodel**. Senator, I can't quarrel with that, but the fact is, you are talking about the distribution company end of this spectrum. At that end, the distribution companies are already facing prices that have been agreed to by pipelines and when those prices come through that attorney general, no matter how he twists and turns and squeezes, he cannot force that price down because the pipeline has agreed to pay it.

The thing we are trying to get to is to put that pipeline in a position where he sits down with the producer and says, "I want your least cost gas first."

Senator **Ford**. Let's squeeze the producers a little bit. You haven't squeezed the producer yet.

Secretary **Hodel**. Senator, the producer will be squeezed if he is placed in a position where he has to negotiate with someone who wants his low-cost gas first, and presently he doesn't have that.

Senator **Ford**. You are going to develop a dual market as Mike testified the other day. On January 1, 1985, you are going to have an intra—and don't shake your head at me. It is there and it is in the record, and I have expert testimony before this committee that says it is.

Secretary **Hodel**. Let the record show I was not the one who was shaking my head.

Senator **Ford**. That's right. They are shaking it at the rear.

Secretary **Hodel**. Is it my staff again, Senator?

Senator **Ford**. But it is just there, and you are going down that path. Let me ask you another question. Mr. Chairman, I have just a few more questions.

The **Chairman**. Fine. Go ahead.

Senator **Ford**. I love it. We have said that 20 major interstate pipelines account for 85 percent of all the interstate gas sales on page 24 of your testimony. It is also in the Butler testimony.

Secretary **Hodel**. I cannot tell you. I do not have it.

Chairman **Butler**. Senator, you asked the question is it the same pipelines that are contained in those tables?

Senator **Ford**. Right.

Chairman **Butler**. I believe they probably are. They are probably the 20 large——

Senator **Ford**. I would like to be working from the same set of figures if I could.

Chairman **Butler**. I believe that they are.

Senator **Ford**. Then Secretary Hodel, can you give me the 13 and the 7 that are in your—"We estimate at least 13 of these pipelines will have no reason to file for rate increase approval because they will have ample room to negotiate and renegotiate contracts with their PGA lenders. Moreover, we expect only some of the remaining seven pipelines will need to apply for rate increase approval."

Can you give me the 13 and the 7?

Secretary **Hodel**. Senator, I can give you those for the record. I do not have the list available to me, but the way in which it was determined in our case is we drew the line, we arranged these companies by price, highest price first, moving on down, drew the line above the seven that were below the market clearing price. That is where we came to our conclusion. I think if we arranged Chairman Butler's list in the same order and drew that line, we would have that list of names.

[The requested information follows:]

The thirteen pipelines which are not likely to have to come to FERC for an exception to the Purchased Gas Cost limitation are listed below.

(1) Columbia; (2) Transcontinental; (3) United; (4) Transwestern; (5) El Paso; (6) Cities Service; (7) Tennessee Gas; (8) Consolidated; (9) Michigan-Wisconsin; (10) Trunkline; (11) Southern; (12) Texas Gas; and (13) Colorado Interstate.

The seven pipelines which are likely to require an exception are listed below.

(14) Panhandle Eastern; (15) Northwest; (16) Northern; (17) Florida Gas; (18) Natural Gas Pipeline; (19) Texas Eastern; and (20) Kansas-Nebraska.

Senator **Ford**. I would like to have those so I can be planning when I ask a question. I don't wish to be playing one against the other here, and you talk about pipelines, two pipelines serving New Jersey. One of you did a while ago. You have two pipelines that serve a lot of States.

Chairman **Butler**. Senator, may I just submit something to you, that there is a little bit of difficulty precisely identifying which is which because as you notice, the numbers that are provided through Secretary Hodel's testimony are somewhat lower than the numbers provided in my testimony.

Senator **Ford**. That's $21 and $31, something like that, or $25 and $31?

Chairman **Butler**. Well, no. I am talking about the pipeline's average gas costs, and here is what that difference is. I would like to point out—I should have done this in my earlier statement—our numbers include the total acquisition cost to the pipelines based on the most recent PGA filings. The consequence is we include in our numbers severence tax, production-related costs, cost of imported gas, cost of pipeline purchases, from the most recent PGA filing—a fairly substantial difference.

Senator **Ford**. Thank you, Mr. Chairman. Secretary Hodel, a three-part question here—I understand you have been meeting with Canadian officials about their $4.94 export cost. Is that true?

Secretary **Hodel**. I have met previously with representatives of Canada. I meet this afternoon with their Energy Minister, Mr. Chretien.

Senator **Ford**. What is the status of those negotiations?

Secretary **Hodel**. The purpose of our meeting this afternoon is to become acquainted. The status of those negotiations is, I think, quite predictable at this stage, Senator.

The Canadians have sent many signals that they want to be long-term suppliers to the United States. They clearly recognize that we have a surplus of gas in the market today and yet not very long ago made an additional 11 trillion cubic feet available for export, 9 plus of which is for the United States.

In that circumstance, they recognize as well as you and I that they are faced with a lower price than $4.94. I have read the press reports that indicate they are prepared to discuss a 50-cent or $1 reduction. I have not been told that by representatives of Canada at this stage, but I expect to discuss this whole process with them.

I am convinced, Senator, that when the United States has a rational pricing system, Canada will want to be competitive with what the market clearing price is in the United States and is prepared to do that on a long-term basis.

Senator FORD. Will Canada's pricing continue to be Government mandated?

Secretary HODEL. I do not know.

Senator FORD. What is your guess?

Secretary HODEL. My guess would be they would be amenable to an open price to be negotiated with the United States on the market, but I am guessing, and I certainly am not basing that on conversations with them. Clearly, they have a regulated price for oil and gas in Canada; and it is quite an interesting study in what happens when you have regulated prices.

Senator FORD. Why should we pay more for Canadian gas than we do for domestic gas and shouldn't imports be subject to a gas cap the same as domestic gas?

Secretary HODEL. We should not pay more, and the reason we are doing so is because of governmental controls, and that is precisely——

Senator FORD. Canadian gas is controlled and they are offering us, if you read the press reports like I do, they say that they are awful anxious to start negotiating with us and get some contracts signed because we are going to be short in 1985, 1986 in natural gas the way we are going at the present situation.

Secretary HODEL. I think that if we had an open price with Canada, their price would have to be competitive with our market. If their Government tries to hold that price above the market, they will find they don't have a market for gas in the United States. That has been part of the problem. That is why there is domestic pressure in Canada to reduce their price today.

The CHAIRMAN. Senator Nickles?

Senator NICKLES. Thank you, Mr. Chairman. Mr. Secretary, and also Mr. Chairman, we appreciate your appearing before the committee, and I want to thank the chairman, too, for the cooperation that he has shown in allowing us to have the hearings in Oklahoma. We have had 2 days of hearings, and Mr. Hodel, I compliment you and also the Department and Mr. Cantrell. You did a fine job in representing the Department in those 2 days of hearings.

I will follow up on Senator Ford's statement because I think he brings out a good point. I read where you are going to be meeting—you mentioned the discussions you plan to have later today.

I find it somewhat absurd that we would have a present policy of actually encouraging imports at the expense of domestic production, and even under the administration's proposal that you have today I see the gas cap coming in, eliminating the gas production in this intervening period of time between now and January 1, 1986, at substantially less than the prices that I hear being discussed for the Canadian or Mexican imports, and so let me just reemphasize to you that, also to follow up again, and I am not positive that this is exactly correct, but if I remember, that of the $4.94 figure price that we have been paying for Canadian imports, that about $1.40 or $1.42 of that was really a tax to the Canadian Government.

Again, I have a hard time seeing us subsidizing that government and then telling our domestic producers that yes, we are going to limit your prices to well below that, and if the gas cap comes in at the neighborhood of let's say $2.50 or wherever, then you are basically saying yes, we are going to hold your domestic production at prices well below what we would be paying for imports, and that is an absurd policy, and it would be the policy if we followed even S. 615 implementation, at least to January 1, 1986, wouldn't it be?

Secretary **Hodel**. I don't believe it would be. First of all, you are absolutely right. It is an absurd situation. We are paying $4.94 per million Btu's, which is almost that price per 1,000 cubic feet.

The reason is, as I understand it, the U.S. Government in its wisdom decided we wanted a ceiling border price, and we said $4.94 would be the lid. The Canadian Government, quite understandably, came along and said, "Well, if that is your lid and you are out buying gas at $5, $6, $7, and higher because of your perceived shortages, we are going to put that in as a floor." Incidentally, it works like the contracts under the Natural Gas Policy Act. The Federal ceilings became the floors of the contracts and so what we have is this anomalous signal, and what is happening is that domestic pipelines are cutting back on their consumption of Canadian gas. They are trying every technique available to reduce the take, and producers in Canada are very upset about the fact they have got this high lid, ceiling, floor, which is forcing them out of the U.S. market. I submit to you that we will not have this same situation continue if this committee and the Congress passed——

Senator **Nickles**. Let me get on to a couple of quick questions. I have got a lot of questions. What percent of our current gas consumption is imports and what percent is the high-cost gas? Isn't it just about the same?

Secretary **Hodel**. It is about 5 percent for each.

Senator **Nickles**. My figure shows imports about 5 on 107, about 6. Is that close to correct? We have all this discussion focused on yes, we are going to abrogate these contracts to the high-priced gas, and I will agree that the low-cost gas has been subsidizing the high-price gas and that doesn't make sense and we should deregulate old gas and your arguments were exactly correct, but under your proposal you say well, let's abrogate these contracts, but then we don't say anything about abrogating the import contracts, and so you kind of, you know, are saying let's have price controls and tear up contracts on the domestic side, but we don't see it on the imports, and so I see a real inequity there. I have kind of broached that to you a couple of times, and when I read, I read in the paper—there is something in the natural gas intelligence talks about Canadian gas is going to come down, maybe come down to $2.50. If it comes down $1 or $1.50, Northwest is going to buy a lot of natural gas. That's great, but they are abrogating contracts at $3.30, and that, to me, seems kind of a serious problem.

I have a hard time, as I told you initially, with abrogating contracts, and also further I have a hard time abrogating—I am not really suggesting that we abrogate foreign contracts. My thinking, I am trying to go through this whole circle, is it seems like I agree with you totally in your objective. Yes, we want to be deregulated by January 1, 1986. I think it should be sooner, but how do we get there between now and there? And this tearing up contracts, if you don't tear them all up, including the imports. I think you kind of exacerbate your problem in this recontrolled method that you have—violation essentially of the contracts between now and then.

Wouldn't we be better off if we left those contracts to run their term and say we will deregulate contracts upon passage of the act? We will deregulate new contracts. We will deregulate renegotiated contracts, and have contracts to stand on their own and allow the market price to dictate, allowing the term of those contracts which I believe in most cases is around 20 years, to run their course.

Secretary HODEL. Senator, let's talk about how people will react, how the pipelines and producers react upon the passage of this act. Mind you, our bill does not abrogate the contract. I know you are aware of this, but we do not abrogate the contract. We give either party to the contract the right to abrogate, if necessary, or if they desire to do so.

Let me take the $3.30 contract you used as an example. First of all, we don't believe that old gas will just automatically move up to the market clearing price.

Senator NICKLES. I don't think it will either.

Secretary HODEL. There will be negotiations. Producers have different kinds of gas. They will bring in bundles of contracts to pipelines and say we want to negotiate across the board and some will come up and some may come down. If Chairman Butler's statement is accurate, and I believe it is, you don't need $7 to make those higher cost gas wells pay. They will be willing to bring those prices down. If I have a $3.30 pipeline, I won't abrogate that contract and the producer won't abrogate that contract in order to go and take high-priced gas from Canada, so the Canadians will find themselves, even if we didn't touch them at all, in a position where to be competitive and to increase their exports to the United States, which is their clear intention by their increased capability, they will not be able to meet our prices and the market will work. We know that the market does work.

Senator NICKLES. You mentioned that you wouldn't abrogate that contract, but let's take, for example, you have a producer that has a 102 well, 103 well. He is selling for $3, $3.30. If he is selling for $3.30, under the terms of this bill, if the gas cap comes in, unless he used the figure of $2.50, you have just abrogated that contract. You just said wait a minute. Bingo. We are not going to pay you $3.30. We will pay you $2.50, and so you have abrogated the way I am looking at it, at least for this period of time, to January 1, 1982. You have torn up that contract that they both relied on, negotiated in good faith, moving away from the second part, the gas cap which in my opinion is abrogating the contract that they entered into in good faith, and yes, you are going to say bring in Canadian gas.

Maybe bring it in at $4 or $3.50, but you are going to be telling domestic producers—correct me if I am wrong. Yes; they have a well at $3.30, but we are sorry, the gas cap came in this month at $2.50.

Secretary HODEL. Let's look at the next time. The gas cap comes in at $4.50. First of all, that is one of the answers to the question, why will people renegotiate? By golly, there is an incentive.

Senator NICKLES. You are putting a gun to their head.

Secretary HODEL. We recognize that.

Senator NICKLES. That is part of the squeeze on the producers. We heard there wasn't any squeeze. If a producer is selling his product for $3.30 and he has a loan out on that well—in most cases, I can show you almost every day in the paper in Oklahoma we have somebody going bankrupt, but you are going to tell him, sorry, you were getting $3.30, we just decided to make it $2.50?

Secretary HODEL. That incentive to renegotiate puts those parties back in position. I don't know what price they will determine. They may determine the market clearing price. They may say we will renegotiate at the $3.30. That was the contract, and they are free to do that. They are free to do that, and the pipeline is free to enter into such a contract. What it has to watch is what happens to its average cost because it has that passthrough limitation.

I still say there is no incentive for a pipeline to take $4.94 gas from Canada if it is getting either $3.30 gas or $2.50 gas from the U.S. producer, and so all that additional Canadian supply, which has been turned down at the present time will remain sitting on the market. Then, there is pressure for Canadian producers to persuade their Government to let that market price be met by Canadian gas.

Senator NICKLES. Mr. Secretary, what I am saying, at least in this interim period of time you have got all these mechanisms by the cap, by mandatory renegotiation if you want to call it that or one-party mandatory wants out, whatever terminology you have it down as, in the other I think you lower domestic costs substantially but there is not that on the imports. Imports almost equal the same thing, the same volume, same prices that you are looking at on 107. Although the focus is on 107, we see nothing happening on imports. I see that as inequitable possibly encouraging imports again at the expense of our domestic production.

I am not a protectionist. I have tried to go through this whole circle and I have just about worked around again to where all we should do is deregulate new and renegotiate it and not test contracts. Allow the contracts to work their will, and I know my time has about expired, Mr. Chairman. Maybe I will wait to bring this around. I would like to get into with Mr. Butler on some of the Columbia gas, what is going on with some of the filings, because I think we are in the process of maybe these contracts would possibly take care of themselves without the Federal Government coming in and putting them in this position because I don't think you can put it on imports. I don't think you can do that, and I seriously question whether or not we can do it on domestic, and certainly whether or not we should.

Mr. Chairman, I have a few more questions.

The CHAIRMAN. Mr. Secretary, there are a number of questions that have come up in the testimony of various witnesses in the hearings we have had up until now and in contacts outside of hearings, people raising questions in private conversation and communications.

Let me pose to you some of those questions which have been raised to us. One, in regard to price impact, it doesn't seem possible that average gas prices would decline after enactment of S. 615, many have said. DOE's model, they charge, relies on the assumption that very little old gas would be affected by contract renegotiation the first year. With market-out available in 1985, it is likely that virtually all old gas would quickly be priced at much higher prices.

Moreover, pipelines may be unwilling to market-out contracts for substantial volumes of high priced gas because of their concern about acquiring adequate volumes of replacement supplies necessary to continue meeting their supply obligations to their distribution company customers.

Why are you so sure that those events are not going to occur?

Secretary HODEL. I am confident, Mr. Chairman, because I think we can anticipate how people will react to the stimuli which are in this proposal. They have a real incentive to sit down and negotiate not just old gas upward, but new gas downward.

We keep coming back to the fact that, at the present time, we have low-cost gas subsidizing high-cost gas. If you put those people into a mixing bowl and say you now have an opportunity to negotiate, it seems to me that the pipeline which has the gun at its head, the pipeline which is not in a position to pass through those increased costs, will have to see to it that the newer, higher cost gas contracts come down. As Chairman Butler testified, those contracts don't require $7 per 1,000 cubic feet in order to pay out their debt service, so they are in a position to come down.

Now, what is intriguing to me about the people who make this statement is they clearly recognize there is a considerable incentive to sit down and negotiate. I think it is correct that you will have it, although some people, as you know, challenge that issue.

The CHAIRMAN. But you don't believe that the old gas contracts will be renegotiated upward uniformly or in large volume in the first year?

Secretary HODEL. I think there will be a lag between the time of passage of any such bill and the time that the first completed negotiations can occur. The pipelines are going to be in a position to have to see to it that they match increased old gas contract prices with new gas contracts decreased. They have this matching problem, and they are going to have to deal with it.

The CHAIRMAN. Chairman Butler, do you agree with that?

Chairman BUTLER. In large part I think. In fact I don't think that what he said is disputed. I would suggest this sort of a simple syllogistic reasoning if you will as an answer to the question, and that is you take the proposition that market responsive prices would almost indisputably be lower than the prices that are currently prescribed on average and are paid on average under the NGPA. If S. 615 is successful in providing a market responsive pricing regime, by definition, the prices under that bill would have to be lower than the ones that are now being paid. The question then becomes a quarrel over whether S. 615 actually creates a market responsive pricing regime, and I think that that clearly would happen in the bill.

It does not increase prices. It immediately has the impact of rolling prices back. It does not have the impact of raising any prices. It does have the impact of overhauling the ramping up of prices that occurs under the Natural Gas Policy Act. I have every reason to believe that not only in the first year, but in the outyears, the prices under the NGPA would be higher than those under S. 615.

The **Chairman**. Senator Warner?

Senator **Warner**. Thank you, Mr. Chairman. Mr. Secretary, Chairman Butler, welcome again, and I congratulate you on the manner in which you have handled this tough problem. Having supported deregulation throughout my Senate career, I am trying hard to find a means to be supportive in this area. I keep coming up against this right of contract abrogation, and I wrote you a letter on March 22.

Mr. Chairman, I would ask that that be made a part of the record.

The **Chairman**. It will be made a part of the record at this point.

[The letter follows:]

JOHN W. WARNER
VIRGINIA

United States Senate
WASHINGTON, D.C. 20510

ARMED SERVICES COMMITTEE
Chairman, Strategic and Theater Nuclear Forces
Subcommittee
ENERGY AND NATURAL RESOURCES COMMITTEE
Chairman, Energy and Mineral Resources
Subcommittee
RULES AND ADMINISTRATION COMMITTEE
JOINT COMMITTEE ON PRINTING
REPUBLICAN SENATORIAL COMMITTEE

March 22, 1983

The Honorable Donald P. Hodel
Secretary of Energy
James Forrestal Building
1000 Independence Avenue, S.W.
Washington, D. C. 20585

Dear Mr. Secretary:

Your testimony at the Senate Energy Committee's hearing on natural gas was one of the most outstanding I have ever seen in my more than four years in the Senate. I look forward to your return April 6.

During today's hearing on pending natural gas legislation, one of the witnesses drew an uncomfortable parallel between the abrogation of contracts embodied in the President's natural gas bill and similar situations in other segments of the American economy. The particular parallel that this witness raised was that of home mortgages. Financial institutions with a large number of outstanding, long-term loans at below market rates could site this as a precedent and ask the Congress to abrogate the loans.

As the Administration's proposal embodies the concept of a Federally-mandated massive abrogation of private contracts, I am concerned about its implications for similar situations. I would appreciate your comments on this matter and wanted to alert you to the fact that I will raise the issue at the April 6 hearing.

As you know, in my state of Virginia some coal is sold under long-term contracts, and I am working actively to encourage producers and purchasers to enter into such contracts. Clearly, the potential for massive abrogation of contracts mandated by the Federal government could send tremors through many industries which routinely sign such contracts. These coal contracts are freely and willfully negotiated by private parties with the understanding that the sanctity will be retained and the contracts honored.

A second issue which I hope to peruse at the April 6 hearing is that of deregulation of old gas. The testimony to date has not convinced me that there will be a positive supply response from deregulating old gas that is sufficient to justify the potential price increase to consumers.

I appreciate your excellent work on the natural gas issue.

With best wishes, I am,

Sincerely,

John

John W. Warner

JWW/jum

Senator **Warner**. But I set forth in there my concerns about this contract abrogation provision. I have gone back over your own testimony on March 9. You said the following:

> Although there is no doubt that Congress has the constitutional power and the commercial clause to modify and terminate existing contracts, inclusion of these provisions is especially difficult because of the administration's philosophical commitment to the sanctity of contracts.

To what extent did your Department consult with other areas of Government with respect to this administrative and now administration determination that you go forward with this piece of legislation? I raise this question against the background of other areas of our economy which are suffering from contracts made under different business conditions, and primary mortgages. For example, did you consult with the Secretary of the Treasury, the Chairman of the Federal Home Loan Bank Board? Did they have any opportunity to participate in this administration's decision? Because I am now getting contact from other segments of our private sector, quasi-regulated still, seeing if they can be freed up from old 6-percent mortgages and now some mortgages that are out there made at higher interest rates now that the interest rates are coming down.

Secretary **Hodel**. In the Cabinet Council process, I consulted with a number of other Cabinet officers; and Secretary Regan, Secretary of the Treasury, was emphatically concerned about the abrogation of contract provision that we have in this bill, sharing your concern and mine and the President's and others' that are very much concerned about it.

The bottom line conclusion we reached is, as I stated in the testimony, we had no alternative. If we wanted to try to move to a free market so we would have an adequate supply at a reasonable price of gas in the future for our country, we had to move to a free market, and there was no way we could move to a free market and leave in place contracts which would have extremely artificial effects on the price of gas.

Now, I would draw a distinction between the areas that you are getting inquiries from now and the natural gas situation. We are not attempting to do this as a means of assisting individuals who signed contracts. We are trying to do this as a means of moving an energy system for this country to the free market for the long-term best interests of the country, and I think there is a distinction there.

Senator **Warner**. Well, again, the goal is commendable, especially if we can get lower gas prices, but we will be setting a sort of a national policy as such, and in the second part of your testimony there you say, "However, after examining the market and listening to many complaints about current contracts, it became clear to us that decontrol would not work unless the parties were free themselves to negotiate contracts entered into under the expectation of Government pricing decontrol."

We had regulation in the banking industry, saving institutions and others for years. I could go on and recite the various regulations that locked the private sector into 6 percent mortgages. Now the mortgages are quite high, so I guess the only thing you can say is that you did consult with the other members of the Cabinet, there were reservations expressed, and the final decision was we were going to hold our nose and jump on this one? Is that it?

Secretary HODEL. I think that is a fair characterization. I will accept that characterization, Senator.

Senator WARNER. Well, we are going to have to take an awful close look here in the Congress because, for example, the collateral matter, many of us are working on deepening of America's ports to promote long-term contracts for coal and other sources of energy that America has, but if we set up a precedent here for canceling these contracts, I don't know whether we can look forward to a bigger part of the international coal market if we are going to abrogate these contracts.

Let me move on to another section that gives me some concern. My understanding of the administration's position is that it would amend the Fuel Use Act to eliminate prohibition of use of oil and gas to new industrial facilities and new electric utilities. If that is correct, if this proposal is suggested, it is less dedicated to moving powerplants and industrial facilities away from oil and gas and toward coal?

Secretary HODEL. No, I don't think so, Senator. I think it is a recognition that we have in place today those plants which have the capability of using gas or oil, and that, in a period of surplus gas, it would be helpful to the consumer to be able to have additional supplies flow through the pipeline and reduce the per unit cost for electric unit consumption.

The Fuel Use Act has not worked as was intended. It has worked partially as intended. It has diminished electric utility consumption of gas, but that has not had the corollary benefit of making it available at a lower price to the consumer. We think that is an important provision, but it is a relatively small amount of gas. It is an adjunct to the balance.

Senator WARNER. So this is no major departure in your judgment?

Secretary HODEL. I think not.

Senator WARNER. Now the concern of the gas distributors is being brought to our attention at present, at least in my case, through the chief executive developers of the various distribution companies, expressing their displeasure with this legislative proposal. I don't know whether they are going to take a leaf out of the banker's book and the 10-percent withholding and put a little postcard on the bill on this issue or not, but——

Senator FORD. Why did you have to bring that up?

Senator WARNER. Well, I know it has been brought to my attention, so I wanted to bring it to the Secretary's attention.

Senator FORD. I am going to send my letters up to him to answer.

Senator WARNER. I thought you were going to send them to me?

Senator FORD. I will send them to the Secretary. I wouldn't do that to my friend.

Senator WARNER. Now if the administration bill really will result in low-gas prices, why do you think these gas facilities are now urging Members of the Congress to vote against it?

Secretary HODEL. Senator, I don't have an answer to that question. I have discussed and debated with them, and frankly, I think it tends to be a knee-jerk reaction to the idea that somehow that old gas is working to the benefit of the consumers.

I don't think it is. I think it is demonstrably not, but I have not been able to carry the day. As a result, we see a number of distribution companies favoring recontrol, and I think that is very short-term outlook on their part. It guarantees that we will have shortages in due course, and when we have those shortages, certainly the distribution companies will not be benefited.

I think they are making a horrible mistake, and they have absolutely misassessed the effect of this bill and the consequences to them of something like this not passing.

Senator WARNER. Did you give them the opportunity for counsel with you in the preparation of this bill?

Secretary HODEL. We had a lot of consultation. I don't know whether it is that—maybe we could have changed something, but from fairly early in the discussions, I was told absolutely they would not consider supporting something that did anything about decontrolling 104 gas. It appears to be some kind of philosophical hangup. I don't think it is sound. I think, in fact, it is clearly unsound, but they are hung up on that proposal.

Senator WARNER. Well, they also have got this problem of the inability of a large segment of well-meaning citizens, their inability to pay their bills, and as you know, the various State restrictions are coming off now. It is warm weather, and it is in the courthouse and otherwise to enforce these things, so this is troublesome.

One last question for Mr. Butler—under section 107 of the Gas Policy Act, the statutory authority for your Commission to institute procedures which would permit producers of old interstate and intrastate gas to receive a higher price if they carry on certain enhanced recovery activities, order 107 of FERC provided producers selling old low-cost gas in the intrastate market receive such higher prices for their gas if they have certain enhanced recovery procedures.

Certainly my constituents have brought to my attention that perhaps you haven't utilized to the maximum extent possible the provisions of the existing law which do increase the price of old gas in the interstate market providing the enhanced recovery procedures are used.

Chairman BUTLER. Senator, the Commission issued a notice of proposed rulemaking, my recollection is about 6 weeks ago, that proposed to extend the same treatment to the interstate market. It never was clearly articulated why the interstate market was not included in the original bill.

I am not trying to shift blame to anybody, but that order that you refer to is one that was issued by my predecessors on the Commission, and it has never been entirely clear to me why the distinction was drawn between the inter and intrastate market. In any event, the NOPR is on the street. Comments are expected and the Commission will have an opportunity to act on it in due course.

I would like if I may, if it would be permissible, to respond to one of the questions about contracts that both you and Senator Nickles raised.

First of all, with respect to the bill, the provisions that permit abrogation of contracts are not precedent setting. The NGPA itself in section 314(a) contains a general rule which made certain kinds of contracts void as being unenforcable, as being against public policy. That is a fairly familiar doctrine in contract law. Since you have a reputation of being a pretty fair country lawyer, I'm sure we can agree on that.

Senator FORD. He is shaking his head.

Chairman BUTLER. In any event, it is not precedent setting in that sense. There is something in the existing law that takes a somewhat similar course, and I think that where we come out, the way that we justify the opportunity or the right given to the parties to a contract to abrogate the contract, is to recognize certain things were done in response to laws that were on the books that tend to disserve the public policy. Something has to be done to correct them. Nobody likes it, and I think the suggestion that we are holding our nose and jumping is very appropriate because that is exactly what it amounts to as far as I am concerned. The gas cap itself is another case of holding your nose and jumping. It is not dissimilar from things that we have done in the past.

For exanple, back 10 years ago we had a system of comprehensive wage and price controls, and in the context of natural gas you have always had price regulations of one kind or another that influenced what normal people have in their contracts by and large. You have got examples in other industries, too, that have been regulated.

We have taken that kind of approach. It is one that nobody likes. I think that what the feeling was, was that this is a compromise. This simply is not avoidable. It is regretable that that is the case, but I am afraid that is the way it comes out.

Senator WARNER. Thank you, Mr. Chairman.

The CHAIRMAN. Thank you, Senator Warner. Senator Domenici?

Senator DOMENICI. Thank you, Mr. Chairman. I only have a couple minutes and I will try to be quick.

Secretary Hodel, in responses to written questions you attached a table. The question had to do with the thesis that there was existing now some downward pressure on prices, and you were asked to give us recent acquisition costs versus maximum lawful price.

I don't think the information is accurate or very meaningful because in most cases you have the mid-1983 acquisition price higher than the maximum lawful price. I have concluded that, therefore, you did not get the price of gas but you got more than the price of gas. You got sonething else added to it.

Could you not do some survey work and get us some specifics with reference to as current as possible acquisition costs of the various kinds of gas so that we will have something in the record as to whether there is in fact a downward pressure or not? I don't think that table could be accurate.

For instance, you have got 102 gas in mid-1983 at $3.61. The maximum lawful price is $3.34. You have got 107 gas mid-1983 at $6.29. The maximum allowed is $5.48, so I don't think the table contains the information we were seeking, and I think the chairman would agree that we ought to have current information. Would you not agree, Mr. Chairman?

The CHAIRMAN. I would agree, and I would invite the Secretary to explain why it isn't or submit the other.

Secretary **Hodel**. I think it would be discreet for me to supply it for the record, and with a description as well as to what that table shows and what a new table will show.

Senator **Domenici**. Yes. I think it includes severance and other things that are not necessarily relevant to the issue of downward or not because they may be fixed.

Secretary **Hodel**. We should break out of that table the wellhead prices that are with the NGPA. We will do that, Senator.

[The requested information follows:]

You are correct. The numbers on the table do include severance taxes and certain production costs.

In an effort to document the downward pressure on gas prices that currently exist in the market, our staff attempted to obtain the requested information on the acquisition costs of natural gas under NGPA category, minus severance taxes and certain additional production-related costs. I am informed that the Energy Information Administration (EIA) only receives the information on costs as shown on the chart we provided to the Committee (copy attached). EIA does not have data which would indicate the acquisition cost minus taxes and production-related costs. I am further informed that such information is unavailable because of the nature of the natural gas contracts executed under the Natural Gas Act and the NGPA. These costs are often in the basic contract, so the wellhead price is calculated with these costs already included.

However, the downward pressure that we referred to is still clearly evidenced in the attached table. With the exception of Section 102 and Section 108 gas, pipeline acquisition costs for all other categories of gas declined between late 1982/early 1983 and mid-1983. This decline occurred even though NGPA ceilings were rising. This trend would still be downward even if it were possible to separate out severance taxes and production cost add-ons from the acquisition costs shown in the table.

We know prices are declining from our conversations with both producers and pipelines. One example of this is El Paso Natural Gas Company's decision to pay no higher than $5.00 per million Btu for about 75 percent of their high cost gas purchases.

ACQUISITION COST

NGPA section	Late 1981/ early 1982	Mid-1982	Late 1982/ early 1983	Mid-1983	Maximum lawful price (March 1983)
102	3.08	3.27	3.43	3.61	3.34
103	2.78	2.93	2.98	2.97	2.74
104	1.27	1.33	1.40	1.24	.282–2.27
106	1.01	1.07	1.09	0.94	[1] .84 [2] 1.56
107	7.26	7.41	7.25	6.29	[3] NA [4] 5.48
108	3.51	3.73	3.80	3.89	3.58
109	2.31	2.46	2.70	2.36	2.27

[1] Section 106(a).
[2] Section 106(b)(1)B.
[3] Section 107(c)(1)–(4).
[4] Section 107(c)(5).

Notes: Acquisition costs are taken from pipeline PGA filings. Not all pipelines have yet filed PGA's covering mid-1983, and the average prices for that period therefore are not necessarily representative of all interstate pipelines. Comparable data for intrastate pipelines are not available.

Senator **Domenici**. With reference to royalties where the Department of the Interior is the royalty owner, it is my understanding, Mr. Secretary, that at this point in time the Secretary of Interior establishes the reasonable price upon which and from which the Federal Government or a derivative of the Federal Government gets royalty.

Now under the new proposed act it could create a rather serious problen in that price is expected to vary and might even vary within a given field as to the same kind of gas.

It seems to me that we are going to have to do something to assure the producer that the present practice of the Department to set the royalty based upon what they think the reasonable price is, we are going to have to fix that some way in this measure or we will have great opposition from those who are going to gamble on marketplace, that a Secretary would set the given price in a given field from whence the royalty would come, and that would be unfair.

I would suggest one approach, and I would like you to consider it, that we would permit the producer to exercise a right to deliver in kind, and that if the Federal Government did not want the gas, then they would have to go with the actual market price for the royalty. In other words, if they want the producer to gamble that the price is wrong, then they ought to take gas and see if they can sell it higher. I would like you to consider that. We have to fix that in some way it would seem to me.

Would you do that, and give us a response?

Secretary HODEL. Yes, and thank you for pointing that out, Senator.

[The requested information follows:]

Your question concerns the impact of S. 615 on the responsibilities of the Department of the Interior (DOI) to collect royalties on Federal gas leases. It is suggested a lessee might have to accept a price for the gas he sells that is less than other prices in a field and that DOI may assess royalties based on those higher prices, not on the actual price the lessee receives for his gas. You have asked us to consider whether the law should be changed so that if a lessee offers to deliver gas to the U.S. in kind in lieu of a royalty payment, and the U.S. refuses to accept the gas, the lessee's federal royalty payment would have to be based on the actual sales price.

We recognize S. 615 will change the gas market DOI takes into account in addressing royalties on Federal gas leases. Under our bill, the producer will be allowed to market his product without artificially mandated Government prices. Under long standing law and practice, DOI assesses Federal royalties based on the value of the gas sold, which is not less than but may exceed the actual sales price. The law is structured to obtain for the public or the Indian lessor to whom DOI bears a fiduciary responsibility a reasonable financial return on public or Indian assets, which will not be diminished if a lessee sells gas at prices below its value, whether through improvidence or in order to suit the lessee's private purposes, such as tax or financial accounting considerations. In exercising these responsibilities on a case-by-case basis DOI takes into account all relevant factors that determine the value of the gas at the time it is sold. The existence of NGPA ceiling prices for sales of gas in today's market has provided a fixed structure that DOI systematically uses in determining value for royalty purposes, and the ceiling prices under the NGPA are used to determine the value of gas. But the sale of some gas produced from Federal lands, such as high-cost gas under NGPA §107, like the sale of all crude oil and other minerals, is not now subject to price control. In these cases, DOI's inquiry into value may be more complicated, but we believe the royalties assessed on that basis have been fair to all concerned, including producers.

In freeing the nation's natural gas markets to respond to changing supply and demand, S. 615 may make the sales price for gas sold from a particular field less predictable and uniform. In assessing royalties on gas produced from Federal lands, DOI would determine value of the gas sold in the context of that free market, not on the basis of a price-controlled market.

Lessees of federal lands should not be penalized in their royalty payments because of S.615.

We have reviewed your suggestion about the U.S. taking its royalty gas in kind. The large number of onshore leases from which relatively small amounts of gas are produced would make the taking of certain gas in kind troublesome. If you believe the impact of S. 615 would make the legislative change you suggest appropriate, we would be pleased to meet with you and DOI to discuss your thoughts further.

Senator DOMENICI. I would think you would have to ask the Secretary of Interior about that proposition.

My third question again has to do with leaseholds. The marketing out seems like an interesting concept, that we have been concerned only about prices as it pertains to marketing out, but I would call to your attention that there are other provisions in leases other than prices that might be dramatically affected by marketing out.

For instance, most leases on Indian lands provide for a very short time of nonproduction as a cancellation opportunity. It would seem to me that we have to fix that. Right now we have many, many thousands of leases. They are producing on Indian lands. If we force the market through marketing out closure that exceeded in many cases 45 days, and that most of the leases have 45 days of shut-in before cancellation of lease, I think we have to fix that, too, and I would appreciate it if you would discuss that with the Secretary of the Interior because there again we can speak of abrogation and marketing out as if it only applied to price, but here we have people who might lose their entire leasehold right because of this law, and I think we will have to at least attempt to address that, and I would personally appreciate it if you would consult and get us some recommendations with reference to it, and in the process make sure that the representatives of the Indian people in the Bureau talk to you so we don't have two versions, one from the Interior and one from the Indian people as to what would be fair.

Secretary HODEL. Thank you, Senator.

[The requested information follows:]

You have asked whether S. 615 would create problems for lessees of Indian lands. You note that, if a purchaser terminates a sales contract with a lessee on Indian lands, and the lessee is unable to find another purchaser for his gas, the lessee may lose his leasehold rights because of non-production.

We recognize that, in many leases on Indian lands, the lessee may risk the loss of his leasehold rights if he ceases production after the lease has been producing gas in paying quantities. If market forces prevented the lessee from finding any buyer for his gas, as in the situation you hypothesize, it is not clear that the applicable law would dictate the loss of the lessee's leasehold. Decisions under state laws construing similar leases have been divided. S. 615 would give a lessee at least 45 days advance notice of a buyer's termination of a contract for the purchase of gas, which termination may not occur before January 1, 1985. If such advance notice is insufficient to enable the lessee to find an alternative purchaser of the gas at an acceptable price, the lessor may be asked to waive any rights it may have to terminate the leasehold for nonproduction, as by amendment of the lease to provide for payment of shut-in royalties, or the lessor may have to accept a substantial reduction of royalties based on the highest price the lessee can obtain for gas at the time.

Should you believe that amendment of our bill is appropriate to reduce the uncertainty facing producers that may be caught in such a situation, we would be pleased to work with you and the Department of the Interior on a solution that protects the interest of everyone concerned.

Senator DOMENICI. Thank you very much, Mr. Chairman.

The CHAIRMAN. Thank you very much. Let me follow up for a moment, if I might, the question that Senator Domenici asked with respect to the answers to previous questions.

At the previous hearing you made statements with respect to the price projections and supply projections, and we followed that up and asked that you supply for the record what the price and supply response would be under NGPA and what they might be under S. 615, and on March 22 you replied and included as a part of your answer to the question a table, and the table that you gave us on March 22 is somewhat different than the testimony you have given this morning. If I recall correctly, your testimony this morning indicates that price under S. 615 would be lower out to 1990 than it would be under NGPA if you make the assumption on supply response.

Secretary HODEL. The reserve assumptions are crucial to that extended date. Without a supply response, which was the basic assumption of our original analysis, we get the table which I think you referred to as the March 22 table. In today's testimony, I was trying to relate to that chart what happens if we find there are additional supplies of old gas, which we think is a reasonable assumption, and that is 5 trillion cubic feet would push it to 1990, and the 10 trillion cubic feet would push it to 1995.

The CHAIRMAN. Why do you make that assumption when you didn't make that assumption on March 22? Because again, that table 1 which was attached to your reply indicated that the supplies would be greater in 1984, about equal under the two laws, NGPA and S. 615, but by 1986 the supply would be greater under NGPA than under S. 615, and that that disparity increased in 1987.

This morning you are making the assumption that the supply will increase more under 615 than it would under NGPA, and I wonder the reason why you changed the assunption.

Secretary HODEL. The key difference is that, at the time we prepared that chart and at the time we did our analysis, we had no basis on which to make an assumption about how much additional old gas, 104 gas, would come into existence or would be available for the market as a result of the passage of this bill. Between then and now we have talked to industry representatives and obtained from them these estimates of anywhere from 2½ to 11 trillion cubic feet, which appear to be on quite a sound reasonable basis.

Taking a look at those assumptions, we are relating it to the availability of old gas, and that leads to the different price assumptions then, so what we are saying is, basically, we have three scenarios. One is the first one on which we did our analysis. We said we will make those assumptions of that increased gas being available in the old field, old wells as a result of this change in the law because that was all we had to work with. That is the original chart.

Then we talked to industry representatives. We get a range of expectations up to 11 trillion cubic feet. If we assume 5 trillion cubic feet, it extends it to 1990. If we assume 10 trillion, it extends it to 1995.

The **Chairman**. Mr. Secretary, S. 615 would permit large industrial users to capture substantial amounts of pipeline capacity. The opponents of the legislation would claim that that would seriously jeopardize service to distribution companies and the residential customers they serve. They charge that industrial users would always be able to outbid distributors in acquiring supplies directly from producers and that, therefore, they could lock in large volumes to be supplied on a firm service basis.

What is your response to that question?

Secretary **Hodel**. My recollection is that, in the event of a reduction of the take or pay to 70 percent, the producer has a right for the untaken portion of his contract to transportation to the market. That would be one available group or block of gas which could be available to distributors, industrial customers or the like.

Second my recollection is that the bill provides that the producer or industrial customer would have a right to unused capacity in the pipeline for distribution in the market.

It is interesting to me to try to relate to the argument that was made because what we see, when we look at the average prices that are charged in the market, is the residential consumer is frequently paying under the public utility commission rate structure that is in existence, and are frequently paying more than industrial customers. So, it would seem to me to begin with, it is the industrial customer—my understanding is 85 percent of the industry, who is using gas in their process, had the ability to switch their boilers over to oil—and so really the test there will be whether an industrial customer wants to get into a long-range, long-term contract at a higher price than the distribution companies are willing to enter into.

At the moment, it seems to me this market does not invite that result at all because the distribution companies are selling gas at higher prices than the industrial customers are buying it.

The **Chairman**. Mr. Secretary, as I recall, there has been a great deal of speculation as to how much renegotiation of contracts was going on already, and up until the time of the hearings there was little evidence of much renegotiation. I think evidence supplied in a survey of the industry to the committee and the other body indicated that there was not much renegotiation, yet current news and information would indicate that renegotiation is now beginning to take place in much larger volumes.

I have a Wall Street Journal article of yesterday about what Columbia Gas is doing, and they are utilizing, I would say to my friend in Oklahoma, a well-settled provision of contract law with respect to force majeure in which they seek to avoid the consequences of take-or-pay provisions under their contracts, and I notice also, from a variety of other sources as well, that there is a great deal more activity on the contract renegotiation front today.

Do you have evidence of that?

Secretary **Hodel**. No evidence, Senator, other than what I have stated in terms of press reports that have been drawn to my attention, but it doesn't surprise me. In other words, I am not surprised to read what I read in the papers; and it seems to me that it helps minimize the impact that may occur from the right of abrogation that would be provided in our contract, and I welcome that to the extent it takes place.

The CHAIRMAN. Mr. Chairman, have you seen evidence of greater activity in renegotiation?

Chairman BUTLER. Senator, I think what we are beginning to see is a reaction to predictable consequences in the market, if something is not done to change the way things are being done right now. The Commission will soon have before it the settlement in the *Transco* rate case which takes a somewhat similar tack to that of Columbia except that instead of involving force majeure, what they have done is to try to reach some kind of accord with their customers and some of their producers where they will provide a transportation service and get gas, that which is currently shut in, sold at a somewhat lower rate than the alternative fuel price to industrial users.

That set of events, the announcement by Columbia, all tend to indicate that there is considerable fear on the part of pipelines as to what may happen in the event they don't get their average gas costs down, and I think what we are seeing is—I don't have a lot of renegotiation to be able to point to and say see, here it is happening, but I think we are beginning to see evidence that it is driving the parties in that direction very strongly, and what you point out is a good piece of that evidence.

The CHAIRMAN. Well, I notice, too, a rise in the number of bankruptcies or applications to court for chapter 11 proceedings on the part of both producers and pipeline companies.

Chairman BUTLER. On the part of pipelines?

The CHAIRMAN. On the part of some smaller pipelines as well, and I just wonder if you see evidence of that not just happening in the producer area?

Chairman BUTLER. Senator, you probably recall when I testified on March 12 that I made the statement that if we continue to see oil prices decline and nothing is done about the NGPA and voluntary accords are not reached, we are probably going to begin to see massive fuel switching where we really haven't seen much up to now. This has been more a theoretical happening than actual.

Under those circumstances, what you look at is the possible loss of another 1½ to 2 trillion cubic feet of sales, as a sort of a worst case estimate, and under those circumstances, it is entirely plausible that you have not only producer bankruptcy but also bank bankruptcy, oil service company bankruptcy, distribution company bankruptcy, and possibly pipeline company bankruptcy—entirely possible.

The CHAIRMAN. I notice, too, that Columbia Gas said that they have informed or are reported to have informed Southwest producers that the maximum price they expect to pay under existing contracts for gas deregulated by NGPA would be tied to 110 percent of the price of No. 2 fuel oil.

At the same time, I notice that Pioneer Gas Products Co. of Oklahoma City is testing the bottom of the market, and they are tying their price offers to producers in Oklahoma at 80 percent of high sulfur No. 6 oil.

Why the wide disparity between Columbia Gas at 110 percent of No. 2 and Pioneer at 80 percent of No. 6? Is that just negotiations and probing in the market?

Chairman BUTLER. Maybe I ought to let Senator Ford answer the question.

Senator FORD. I think it is an unfair question for either one of us.

Chairman BUTLER. I think that it probably is fair to say that obviously there are different management choices, management philosophies.

In the context of the market we have got right now, it is very hard for me to imagine any pipeline company continuing, persisting in tying their prices for unregulated gas or any other gas to some multiple of No. 2 fuel oil.

The CHAIRMAN. The reason I asked that question, Mr. Chairman, is that when NGPA was passed there was a widespread assumption that the relationship that Columbia Gas has identified here as recently as the last 2 or 3 days was the correct relationship, whereas as a matter of fact we found that in many places in the market the relationship that Pioneer has identified is the actual market relationship.

Chairman BUTLER. Senator, those thoughts or theories persist. They are also embodied in a number of Commission orders. For example, order 99, which establishes pricing for tight-sands gas, uses what is viewed there as a blend of No. 6 and No. 2 prices. The theory back then was that the alternative fuel for residential users was No. 2 fuel oil and gas is clean burning, and AGA propaganda, and so forth. You have got to pay a premium for it. So people figured, they scratched their head a little bit, stuck their finger up in the air and said: let's take 110 percent of No. 2.

That is just not exactly the most scientific way in the world to figure it out.

The CHAIRMAN. Congress never did that. We did somewhat that in the NGPA.

Chairman BUTLER. A lot of folks out there you listened to in the course of testimony that you heard before you said that, and I think that was pretty much the conventional wisdom at that time.

The CHAIRMAN. It was certainly the conventional wisdom presented to us at that time, but I do know that in the Pacific Northwest, particularly in the Puget Sound area, the Canadians, who are the principal suppliers of that market, have lost market substantially to a number of sales in the industrial market, and the result of that has been that consumers have been hurt because volumes went down and unit costs increased as a result of that decline in volume in the industrial market.

Chairman BUTLER. What we saw there is spreading to the rest of the country.

The CHAIRMAN. Senator Bradley.

Senator BRADLEY. Thank you very much, Mr. Chairman. These questions are for both Secretary Hodel and Chairman Butler. Each of you may answer them or if you agree with the other you don't have to say the same thing.

I want to ask about the contract carrier proposal that is embodied in the bill. Why, in your view, aren't most interstate pipelines now transporting gas for other parties?

Chairman **Butler**. There is nothing now in the law that gives anybody the authority to require them to do so directly. There is an opportunity for the Commission, which the Commission has taken, to provide a disincentive, let's say, for them not do so indirectly. That was suggested in some words that the Commission issued back in the fall, in which we said we are going to tie the returns to the extent to which their capacity was utilized. That is something the Commission intends to carry out.

In answer to your question, it is unclear to me at this point in time whether there is a simple refusal on the part of pipelines to use spare capacity to carry gas for others, or whether or not pipelines, which are designed for peak-day uses have spare capacity simply because peak-day capacities have not been reached for one reason or another; they chose not to do it.

Secretary **Hodel**. I have nothing to add, Senator.

Senator **Bradley**. What would your proposal do to encourage pipelines to make these kinds of transactions?

Chairman **Butler**. Well, it provides an economic incentive in the sense that it offers them the opportunity to earn as much as 5 cents per 1,000 cubic feet carrying gas for others without that being credited to the revenue requirements in their current rate cases. It is a fairly substantial economic incentive.

Secretary **Hodel**. And of course it requires in certain cases that spare capacity be made available.

Senator **Bradley**. Those are the only two differences between current law and your contract-carrier proposal?

Secretary **Hodel**. They are all that I am aware of, Senator.

Chairman **Butler**. They are the only two that come to my mind right at this second.

Senator **Bradley**. What do you see as the benefits that would flow from enactment of these provisions?

Secretary **Hodel**. In the case of take-or-pay contract limitations, we felt it was essential to have the opportunity for producers who found themselves suddenly shut off in the market by a reduced take to have the ability to move that untaken gas to the market.

In the case of using spare capacity for reaching the market, the real advantage is that it prevents a pipeline, which is the sole source to the market from a given field or set of fields, from using that power to upset the market. We saw no other way in which we could really move to a market unless we found some way to get producers who might be sitting with the gas supplies that they would be willing to sell at a reasonable price to that market, so we thought that was crucial, and we thought that the incentive price that Chairman Butler referred to was not an unfair approach to those who had invested it in pipelines and figured that they were going to be controlling their destiny because we have said somebody else has a right to utilize their capacity.

Senator **Bradley**. So what would it do for competition at the wellhead?

Chairman **Butler**. It should tend to enhance it.

Senator **Bradley**. How?

Chairman **Butler**. Well, it should tend to enhance it by giving the producer an option in terms of his purchasers. Pipelines simply because they are monopolistic at the buying end of the line, what it tends to do is produce a monopsony.

Senator **Bradley**. It will make it easier? If a producer wants to sell, the pipeline will more or less have to take it? Is that right?

Chairman **Butler**. That is correct.

Senator **Bradley**. And among the pipelines this is producing competition?

Chairman **Butler**. As among pipelines, it is my belief that it probably will provide some competition.

Senator **Bradley**. How?

Chairman **Butler**. There is a limitation in the markets for one thing. To the extent that one pipeline has gas that is priced higher and is committed only to selling its high-cost gas, and it is paralleled by another pipeline which has access to and is willing to sell or is willing to transport between independent buyers and sellers gas that is lower priced, it seems to me that the choice that the buyer is going to make, under those circumstances, will work against the higher cost pipelines.

Senator **Bradley**. Higher cost pipelines?

Chairman **Butler**. It will discourage the higher cost pipeline to continue paying his prices for gas and find ways to get its costs down.

Senator **Bradley**. What effect do you think this will have on consumer prices?

Chairman **Butler**. It should tend to reduce them clearly.

Senator **Bradley**. Could you explain in detail how it would tend to reduce prices?

Chairman **Butler**. It should do so in two separate ways, Senator. One is that competition of that kind should tend to reduce the cost of gas at the wellhead by providing an incentive to the pipelines to try to negotiate their prices down or at least to stay at market clearing levels rather than to pay above market prices for gas.

The second thing that it should do is also reduce the unit transportation cost by spreading it among a larger number of users, and to that extent it should also reduce costs or prices to the consumer.

Secretary **Hodel**. Senator, if I may add just one comment that I made earlier, and that is what concerns me is, although I believe our proposal in this aspect of it also contributes to lower consumer prices, this proposal, like all the others, I think should not be oversold to the consumer because I fear that the level of price reductions being talked about under the proposals before the Congress will be such that a colder than normal winter or normally cold winter, as compared to the last warm winter, may wipe out the savings in terms of the monthly bill.

Senator **Bradley**. Increased demand will wipe out——

Secretary **Hodel**. Increased demand by the individual consumer; he will look at his bill next year and say "Gee, I thought we got a price reduction. Instead of that, my bill went up." He doesn't look at unit cost. He looks at the total cost, so I am concerned about that aspect.

Senator **Bradley**. But I think your proposal will significantly increase the popularity of direct purchase transactions.

Chairman **Butler**. I think it should.

Senator **Bradley**. For the reasons that you have stated?

Chairman **Butler**. Yes, sir.

Senator **Bradley**. Let me ask you now, Isn't Transco already offering to provide transportation services for utility and industrial users? They announced that a short time ago.

Secretary **Hodel**. Senator, I missed that. I would defer to Chairman Butler.

Senator **Bradley**. The question is, Isn't Transco already offering to provide transportation services for utility and industrial customers?

Chairman **Butler**. That is correct, Senator. What Transco has done is unique and I have to be very honest with you in saying I am not entirely comfortable with it. We will have an opportunity to review the settlement.

Senator **Bradley**. Why is that?

Chairman **Butler**. For the long haul—let me put it to you that way—because what they have done in effect is to price segment their market, and except for the fact that we have a distressed gas market right now, it seems to me that that could be viewed as essentially anticompetitive or at least price discriminatory in a very classic sense.

Senator **Bradley**. Can you describe that in detail?

Chairman **Butler**. What they have done is they have said to us we will continue to carry volumes at a given level, but we know because our prices are at a level that is at or above alternative fuel prices we are going to lose a large section of our industrial market. The consequence is that what we would like the opportunity to do would be to provide transportation services between buyers in that industrial market who can cut a deal with producers for gas sales at a level below the alternative fuel price.

Senator **Bradley**. What's wrong with that?

Chairman **Butler**. The only thing that is wrong with it is that in a system in which residential users, your price inelastic users, are paying a higher price than your price elastic users, the question is whether or not that is justified by a public policy of some kind. It seems to me you can argue that both ways.

On the one hand what you say is that the price discrimination is justified because the consumers for one reason or another, the inelastic consumers, are going to be better off by the pipeline maintaining a relatively high-load factor. You have an arrangement to that effect, although it is not entirely clear that is the case.

Senator **Bradley**. You said it is not clear? Half-full pipeline transfers increase——

Chairman **Butler**. I won't go that far. The question probably is a somewhat narrower one than that. The second question is, is there some cost differential as between the two customers that justifies a difference in price? Probably outside of the typical rate design problems we run into there is not one that justifies that.

The question then becomes, is this something that you really want to do over the long run? Typically, with respect to the sale of any commodity, the price that the consumer pays is the price that is established by the last unit sold in the market and not somewhere else up the demand curve. What we have done in effect is to say for the consumers at one set of the demand curve we are going to put the price at *X*, but for the rest of them we are going to put it at *X* minus something, and the only thing I am suggesting is that it would be desirable if all consumers along the demand curve had the advantage of what typically happens in an unregulated market that is relatively competitive, and that is they should have the advantage of the price of the last unit sold and not the one set somewhere in the middle of the demand curve.

Senator BRADLEY. Let's say the utility is able to go directly to the producer and cut a deal, and then the pipeline has to carry the gas as Transco is doing now.

Doesn't that benefit the consumer? Won't he be paying less for the gas in a direct sense, as well as the indirect benefit?

Chairman BUTLER. There are at least two advantages to the consumer in this system that we are working with. One of them is that you are absolutely right. To the extent that the load factor is increased, the unit cost declines to all the customers on the system.

The second advantage to them is that we have an interesting kind of revenue treatment, at least as I was talking with staff at the time we were negotiating. Something should have wound up in the agreement to the effect that, to the extent that the cost of gas, because of the application of NGPA categories, is different or is lower than the cost of alternative fuel, whatever that spread is should get credited back to the customers on the system, so there is really something in the program for everybody.

The question is whether a complex system like that is one that is really desirable for the long run.

Senator BRADLEY. We have a proposal before us that does have a contract carrier provision. If you are concerned about segmenting the market, how do we write that provision to avoid a segmented market? You made the case quite positive that it is good to have.

Chairman BUTLER. It seems to me, Senator, that what happens, you have got a segmented market, you have got the opportunity for a segmented market right now because the rest of the system is fouled up. The pricing function is broken if you will. You have got an uneven distribution of cushion among pipelines. You have got different average gas costs.

What we are really trying to get ourselves to the point of having is a relatively uniform national price. Under those circumstances all users will end up paying virtually the same thing, so it seems to me that what you have to do with that common carrier provision is to look at it in the context of what the rest of the bill does and hope it is going to put us in the position where everybody is paying the marginal cost of the product. That is where I would like to see the system driven.

Senator BRADLEY. It is still unclear to me what your specific recommendation is for the contract carrier provision.

Chairman BUTLER. As a general proposition, I think the contract carrier provisions are relatively good. As I am sure you are aware, we had some of our staff people assist some of your staff people in looking at different kinds of common carrier provisions. What I have seen indicates that they are relatively consistent. I would be more than happy to continue to work with you to flange those up and make sure they do work because I think our goals are very similar.

Senator **Bradley**. In response to one of the questions that I have put to you, you said that FERC would also need a permit for self-implementation on blanket authorization of transportation arrangement.

Would you and Secretary Hodel be supportive of legislative authority to provide a blanket certification?

Chairman **Butler**. Yes, sir, I would.

Senator **Bradley**. You would, too, Mr. Secretary?

Secretary **Hodel**. Yes, I would.

Senator **Bradley**. In the text of your testimony, Secretary Hodel, you have said that of the 20 largest interstate pipelines, 13 should experience price decreases. This is also what Chairman Butler said in response to the written question I asked him.

From your descriptions I am sure that you came to the same conclusion by the same route, so what I am curious about, would you both describe how you reached your conclusions?

Secretary **Hodel**. Senator, we make the assumption that the market clearing price is below the wellhead price being paid by those 13 pipelines, and that as take-or-pay provisions are applied, as the gas cap provision is applied, that will have downward pressure on those prices to permit them to negotiate for lower prices. I think they won't have occasion to come in for pass-through approvals it is my understanding, because they are already at prices that are above the market clearing price, and therefore the average price that we think the gas cap will provide.

Senator **Bradley**. In your response you listed companies by numbers, and in Chairman Butler's response he listed them by name.

Now do you, Secretary Hodel, take the weighted average cost of gas purchased as a basis as does the chairman?

Secretary **Hodel**. Yes.

Senator **Bradley**. Rather than getting into these details now, would you each provide a response in writing?

Chairman **Butler**. I think we can do that, Senator.

[The requested information follows:]

Yes, the figures are based on volume weighted average of domestic wellhead purchase prices. The figures do not include prior period surcharges, the cost of imported gas, the cost of synthetic natural gas, and purchases from other pipelines.

Senator **Bradley**. One final question—would either of you support a spot market for natural gas?

Chairman **Butler**. Senator, I will say for myself that I would. There is a fairly typical problem. That is, gas is usually sold under long-term contracts for a variety of different reasons, most of them pretty good in my opinion. You could theoretically, and I think probably actually, substitute a pricing function in contracts that replicates what you would expect to have happen in a spot market, and I think that would be all right.

Secretary **Hodel**. Senator, I have raised the question previously about whether we create the potential for a spot market under the proposal which we have, and it is my impression that we do.

I don't advocate a spot market, but I have no reason to oppose a spot market if it naturally occurs in the market under this proposal. Then I think it would have potentially beneficial effects.

Senator **Bradley**. Thank you very much.

The **Chairman**. Senator Johnston.

Senator **Johnston**. Thank you, Mr. Chairman. I wanted to apologize to these two very good witnesses for having to have been at the Budget Committee. We have started our markup, and that happens to have some slight importance.

Mr. Chairman, I have been very interested in the suggestions made by Chairman Butler about where the price of OPEC oil is going.

As I understand it, you have testified in other places, maybe here, that for a variety of reasons you think it is likely to go to $20, $25 per barrel. I said the same thing. I said about $25. My theory is that there never has been an OPEC. There has only been a Saudi Arabia, and now Saudi Arabia has such low production that they can no longer control the world, and an honor system among the likes of the Ayatollah doesn't work.

Is that the basis on which you base your estimate?

Chairman **Butler**. It sure is, yes, sir, that in combination with the fact that the financial requirements of a very large number of the foreign producing nations are such that they simply don't have the option to shut down.

Senator **Johnston**. Do you feel that way?

Secretary **Hodel**. Yes. I have said in the mid-twenties, at the time the OPEC disruptions began, I thought they would eventually settle into the middle twenties.

Senator **Johnston**. Now the present weighted average purchase price of natural gas across the country is what, $2.65?

Chairman **Butler**. Probably right now it is closer to $2.75. If you include the acquisition costs, that is severance tax and production-related costs, total weighted average acquisition costs of gas across the country, the average is probably around $3 I am informed.

Senator **Johnston**. That includes Canadian, LNG?

Chairman **Butler**. Pardon, sir?

Senator **Johnston**. LNG and Canadian?

Chairman **Butler**. No. That would include domestic gas.

Senator **Johnston**. You took off severance?

Chairman **Butler**. It does include severance tax and production-related gas.

Secretary **Hodel**. If you took hold of this $2.65, $2.75 would probably be in the ballpark.

Senator **Johnston**. Next question—is the weighted average price not now fairly well determined by the market?

Chairman **Butler**. I don't think it is fair to say the weighted average price, Senator. The price of new gas, that is, gas that is not currently under contract, is pretty much being determined by the market. We are seeing that sold in many cases at well below the section 102 price, and in fact probably in a lot of cases below the section 103 price.

Senator **Johnston**. When I say the weighted average price is being determined by the market, I mean you have some 104's that are very low. That makes your 107's, some of them, very high, and 102's higher than the weighted average cost?

Chairman **Butler**. That is pretty much the way the system tends to operate. The only problem that you have got, I think the only factor that you have got to insert, is the inflexibility of the downward pricing, inflexibility that is caused by contract terms that have grown up in this regulated market regime. Arguably weighted average acquisition costs right now are above market levels on the average in many parts of the country, and they are being held there in effect by the contracts and the inability of the parties to those contracts to retrade their deals.

Senator **Johnston**. If the weighted average natural gas cost, exclusive of these other things, is say $1.65, if the price of crude is going down, going down say from what is now the average, $29 per barrel, to an average of $25—do you think that hypothetical is reasonable?

Chairman **Butler**. That is reasonable.

Senator **Johnston**. And if it is the market price of crude now that is holding the price, of natural gas down, that market price would also tend to come down as the price of crude comes down as well, would it not?

Chairman **Butler**. I think that is clearly the case, Senator.

Senator **Johnston**. If all of these things are true, then aren't we looking at under this bill a price for new gas of $2.50 or less? We had testimony to that precise effect the other day.

Chairman **Butler**. $25 a barrel, I think $2.50 probably, or less, probably is fair. I think it is accurate. It may not be fair. It is accurate.

Senator **Johnston**. Now producers are having a very difficult time with their cash flow right now. Most of them are in hock up to their eyeballs to the banks so they can drill some nore wells.

What do we do to producers if we reduce their new gas from $3.30 or so down to $2.50?

Chairman **Butler**. Obviously, Senator, you wind up taking some of their cash flow away from them. That cannot have positive effects on drilling.

On the other hand, the question I think that we all have to deal with is whether or not the market value of the gas is such that we should continue to subsidize or try to subsidize with the system that we have.

The inevitable result of the system that we have is that prices are not market responsive downward. Markets are lost. That is precisely the kind of problem that Senator Bradley was referring to a few moments ago with respect to problems on the Transco line, and it is a fairly convoluted and complex and difficult system that our staff has tried to arrange with Transco in the form of settlement that we hopefully will have before us before too long. Either prices come down or market is lost. It's that simple.

Senator **Johnston**. We are seeing that market lost in a lot of places now, and the resumption of market will help cash flow as much as the price will in a lot of situations, but that is an awfully big drop, particularly for your independent producers who don't have the 104 gas.

Now let me ask you this. We have a situation in Louisiana where we have a lot of direct sales. They were normally made and contracted for from the intrastate market when it was in a deregulated situation. Then average cost is somewhere below a dollar. The number of jobs involved in those industries is multithousand, maybe multitens of thousands. We are trying to get that information now.

The producers, I mean those industries have been in my office and have said if we have a marketout on these contracts we go out of business. Kaiser Aluminum is one, and some would say the aluminum business days are numbered in this country. I hope not, but they say that. Others are ammonia fertilizers, and they are under terrible competitive disadvantage already—other petrochemicals.

Do we have any study at all as to what this would do to the competitive situation of those direct sales people?

Secretary HODEL. Senator, I don't have a study of that. I think intuitively it is clear that your statements are accurate. They would find themselves with further economic disadvantage with their competition, especially foreign competition.

Senator JOHNSTON. Well, Texaco is on the other side of this and Texaco says look, some of these industries are competing directly with others who are paying $3.30 for their gas, so they have a nice, cozy situation, at our expense. That makes sense, but then the others come in and say no, it is not a cozy situation. We are hanging on and we want to be able to continue to hang on. It seems to me that where we are talking about thousands, maybe tens of thousands of jobs and survivability of the American industry. We ought to have the answer to that question before we proceed here.

Secretary HODEL. Let me comment that this kind of formula for this argument we hear in a number of instances with regard to this whole question. I certainly understand the representative of that industry who comes in and says we are in a terrible disadvantage because of this proposal, but I don't think we can afford as a Nation to turn our whole energy system on its head because an industry finds itself in trouble.

If we determine that as a matter of public policy that industry has got to be saved, and I believe there may well be industries that fit that category—I share your view that I hope that we don't export the production of all of the strategic and basic metals for this Nation—if we decide we have to do something about that, we ought to do that directly. We ought to face up to the issue and say they can't compete for reasons of whatever.

Senator JOHNSTON. The first thing I do is ask the question can they surrive? And get the answer to the question.

Secretary HODEL. May I suggest that I have some past experience in the electric business in dealing with industries that advise me they could not exist if the price of our product went up, and they have survived—not as happily as they were I must admit, but they have survived, but we will never know in advance.

This is very much like a question. How much old gas will be produced if we free the market? We won't know unless we try it, and I don't think that we can come up with an accurate answer. I think that the inventiveness and imagination and incentive to survive is strong; but until faced with the issue, it is much easier to come in and advise this committee and us that, "gee, if you do this, we can't survive."

I am terribly pessimistic about coming up with a definitive, reliable estimate of the ability to survive in increased price.

Senator JOHNSTON. We have been hesitant, as you know, to repeal the Fuel Use Act or incremental pricing so long as you have this huge stream of subsidized gas out there, the idea being you didn't want to use subsidized gas as a special inducement to new industry.

In your view if the only question before the committee were the repeal of the Fuel Use Act and incremental pricing without the rest of the bill, just those two issues, would you be for repeal? That is the question for both of you.

Secretary HODEL. I think I would be for that because I think it has turned out those two provisions have not operated to the benefit of the consumer; but I have not studied them in that isolated context, and there may be elements that I am not aware of, but based on what I do understand about them, I would support that.

Senator JOHNSTON. Chairman Butler?

Chairman BUTLER. Senator, for one reason or another I lost your question.

Senator JOHNSTON. Would you be in favor of repeal of the Fuel Use Act and incremental pricing without any other provision of this bill, just those two questions in isolation?

Chairman BUTLER. No, sir.

Senator JOHNSTON. All right. You would be for the preservation of both unless you had the rest of the bill?

Chairman BUTLER. To me, it is pieceneal. It is a quick fix. That is the problem that I have with it. There are a variety of problems that we have in natural gas—for instance, it is sort of like saying, a very analogous question would be would I be in favor of the contracts fix without decontrol of old gas?

Senator JOHNSTON. I am opposed to piecemeal fixes. I agree with you on that, but does your answer mean that incremental pricing is serving or will serve a useful purpose?

Chairman BUTLER. No, sir. My reason for answering the question "no" does not express any favor with demand constraint legislation now on the books because I don't—I think it is wrong. I recognize the purposes for which it was put on the books and I really don't have any terrible disagreement with the idea.

To the extent we can we ought to be moving industry off oil and gas onto other kinds of energy sources which are more within our control. It is a desirable policy option. It seems to me the market ought to be making those decisions and not us. We just do it imperfectly, so I find no philosophical favor at all with those kind of provisions. My answer is, that there are just an awful lot of problems, and I think that we ought to try to address all of them instead of—I am sure that by now, Senator, you and your colleagues are sick to death of natural gas, and I have to confess to you I am, too.

Senator JOHNSTON. We're just getting interested.

Chairman BUTLER. I would like to see us get this problen taken care of and not have to repeat this again next year.

Secretary HODEL. Senator, may I say I assumed that you are asking the question in the context that Chairman Butler puts it.

His is a very thoughtful response and I would certainly concur with not piecemeal fixes. I thought you were asking how do I feel about those two provisions? Do I think they serve a useful purpose? The answer is no.

Senator JOHNSTON. I thank you, Mr. Chairman.

The CHAIRMAN. Senator Hecht?

Senator HECHT. Thank you, Mr. Chairman. I came in late. I had another hearing this morning. No questions—thank you.

The CHAIRMAN. Thank you. Senator Ford?

Senator FORD. Thank you, Mr. Chairman. Mr. Secretary, under the present circumstances with Canada, for instance, they will keep their take and pay contract I suspect even if we pass 615.

Secretary HODEL. Our bill would not deal with Canadian contracts.

Senator FORD. How many dollars from pipelines are now due the Canadian producers or the Government of Canada on a delayed basis?

Secretary HODEL. I don't know.

Senator FORD. Isn't there a substantial amount? Chairman Butler, do you know?

Chairman BUTLER. I think there is probably a fairly substantial sum of money outstanding. I know that demand for fairly substantial payments have been made on both Michigan-Wisconsin and Northwest Pipe, and I suspect on other pipelines as well. I might be able to come up with that information and supply it for the record if you would like to have it.

Senator FORD. I wouldn't mind that. Do you, Mr. Chairman, scrutinize the financial statements, annual financial statements, of the various pipelines, producing companies, and et cetera?

Chairman BUTLER. Not in a systematic way, Senator, that I am aware of.

Senator FORD. We get those reports coming in the office, big four color slick page stuff, and you look down there and you find a statement almost in every one of them that almost glares out. It talks about the outyear payment on take and pay, and I have a little inclination here this morning that some would like to to have deregulation of old gas and keep contracts in place. I don't know how we can—not from you all, but from those on this side of the bench.

Mr. Secretary, you talked about old gas being deregulated and prices coming up and at the same time it would bring new prices down. Wouldn't they kind of average out? Mr. Chairman, I don't understand much about two and two equal three, but if you have 50 percent old gas and 50 percent new gas, that might work. Where you have 50 percent old gas and 3 percent new gas, I just don't understand how you can get that price to work out.

Secretary Hodel made the statement. I will let him answer his own statement.

Secretary HODEL. Senator, my understanding is that we have 50 percent old gas and 50 percent higher priced gas, all of which is above the present anticipated market-clearing level. It is that balance which I think provides the opportunity, and further where you have $8, $7, $8, $9 gas——

Senator FORD. Do we have any of that now?

Secretary Hodel. My understanding is you still have some take or pay contracts which provide for that, and I think the Algerian gas is coming in at something approaching that. Where you have those kind of prices, there is a multiple effect obviously. All of that 3 percent obviously, even if it were four times as much as low gas, could be dealt off. I recognize that difference, but the 102, 103, and other gases which are above the $3 level, or the $2.75 level that may be the market-clearing today, all of those are amenable to the renegotiation process. Further I think I have said many times, I don't anticipate that all of the old gas contracts will be renegotiated immediately, and I don't anticipate that if they are renegotiated that they will automatically reach the market-clearing price.

I think that there will be an incentive for some producers to improve their position, but not by going to $3 or $2.75, but rather to go from $1 to a $1.50, or $1.75 and still have room for the pipeline to meet its obligation of the passthrough limitation.

Senator Ford. Well, I have a lot of trouble when I get a table presented by you and that the chairman alluded to a few moments ago of March 22. Today is what, April 6. That is 12 days, 2 weeks, and you compiled it, the table, and you find that S. 615 in the near term, 1986, that residential prices under S. 615 will be higher than under NGPA. That is your statement. You answer all these questions in a big, thick paper, and then in outyears it just keeps getting higher and higher. The industrial comes down a little bit, but it begins to get a little closer together at the end of your sheet which is 1987. It starts out in 1985 at 18-cents difference, and 13-cents difference, and 10-cents difference, and it shows that in your outyear on industrial it is going to close up, going to increase over NGPA. At 1986, 1987, you show that S. 615 will bring a higher price of gas to the residential user than under the present law.

Now explain that to me, except you say that you have a visit from the industry people and they gave you a different idea, is that correct?

Secretary Hodel. That table is based on the assumption there is no supply response to the freeing of the price of old gas, which was the only assumption we could make without making an arbitrary assumption which could not have been defended at the time this table was put together. So, what we do by finding that there is additional old gas, and depending on how much it is——

Senator Ford. How did you find out there was additional old gas?

Secretary Hodel. In talking about it, the industry raises that very question because I challenged the assumption that was behind this table. I don't think it is correct to assume there will be no response to the increased price, and certainly we know that was not the case with oil. We know with oil there was a substantial improvement in the availability of old oil. The reserves of old oil grew.

All that does when we find additional supplies of old gas, it moves to the right those of lines. It extends the time that the consumer benefits under our proposal which are better than those under NGPA, and I recognize that.

Senator Ford. It does?

Secretary Hodel. Yes.

Senator Ford. The consumer wins under S. 615?

Secretary **Hodel**. The consumer wins under S. 615, not only initially but between now and the time our lines meet. We extend the time before those lines meet if there is additional old gas made available. I don't think there is any magic about that. All I am saying is that, if our price drops below NGPA, there is an immediate benefit to the consumer.

Now, as our price moves back up to meet the NGPA level, if it meets it sooner, as the assumption of no additional supply it results in a crossing of the lines.

Senator **Ford**. What industry representatives did you meet with? Is that a fair question?

Secretary **Hodel**. Yes. That study that we were most impressed with was the Shell study.

Senator **Ford**. Shell?

Secretary **Hodel**. We also met with NGSA, Sun, and Arco.

Senator **Ford**. Sun and Arco.

Secretary **Hodel**. We obtained a range—two and a half.

Senator **Ford**. What about Superior? Did you meet with them?

Secretary **Hodel**. These were the four that I understand our staff has met with.

Senator **Ford**. You didn't meet with Texaco?

Secretary **Hodel**. No, sir. I am informed, Senator, that we met with people who indicated they had done some analysis.

Senator **Ford**. Let me ask you this, Mr. Secretary. Has EIA done any analysis of the effect that S. 615 has or are the only figures you are using coming from industry?

Secretary **Hodel**. EIA I am informed has not done an analysis of S. 615 at this time.

Senator **Ford**. You are just depending on what industry tells you?

Secretary **Hodel**. Excuse me. The analysis that you are referring to, the March 22 chart, is a Department of Energy policy.

Senator **Ford**. You have revised it to date 2 weeks later, that industry has informed you?

Secretary **Hodel**. There is nothing wrong. This chart, as I understand it is based on a set of assumptions. What I am saying is, if you change one assumption, it would produce additional supplies of low-cost gas to go to our bill, then what it does, it moves these numbers several years down the road, depending upon which assumption you use.

Senator **Ford**. You are assuming this then based on what industry has told you and not what EIA has put together for you?

Secretary **Hodel**. As far as I know, there is no way EIA could come up with such numbers unless it asks industry what do you think will be available? That is still an estimate on somebody's part as to the price responsiveness of the supplies of old gas.

Senator **Ford**. I have another question but it slipped my mind, Mr. Chairman.

The **Chairman**. I can't believe it.

Senator **Ford**. You can't believe that, can you? Mr. Chairman, have any of the major distribution or pipelines rattled Section 11 at anybody?

Chairman **Butler**. Section 11, Senator?

Senator **Ford**. Chapter 11.

Chairman **Butler**. Chapter 11—not that I am aware. I can think of one and perhaps two candidates.

Senator **Ford**. Let me ask one more question, Mr. Chairman McClure. What price per barrel of oil is your assumption made under table 1 projected prices?

Secretary **Hodel**. It is $31 to $33 a barrel.

Senator **Ford**. And we hear today and you have been saying ever since we had a little Mideast crisis it is going to be $25, midtwenties or $25, and if my country figures are reasonably correct with a pencil, you are going to find that there is going to be a greater disparity between the NGPA and S. 615 I believe.

If the price of oil comes down to $25, won't 615 cost more?

Secretary **Hodel**. I would think it would work just the opposite, Senator.

Senator **Ford**. There would be a greater disparity.

Secretary **Hodel**. It benefits the consumer if S. 615 passes. In other words, the lower the oil price, the more the free market has to meet it, and it is that that comes through our bill which would then benefit the consumers significantly. By not using lower figures we were being careful not to try to slant this chart.

If we used $25 or $27, which nobody can prove will happen yet, I could have been accused of trying to slant the chart to make our bill look good. We took, I think, very conservative figures on that score and did not make supply assumptions in that first chart. It would definitely benefit the consumer and make our bill look better compared to NGPA.

Senator **Ford**. For a couple of years under 615, your bill, you could hold prices down for a couple of years?

Secretary **Hodel**. Our bill holds prices down for a couple of years, but with this, I think, it holds it down to what is the real market.

Senator **Ford**. What you think is the real market, and the philosophy you are telling me is the open market deregulated?

Secretary **Hodel**. That's right.

Senator **Ford**. And so you are instituting artificial pricing which holds prices down for at least 2 years?

Secretary **Hodel**. We do it in order to prevent the application of contract provisions which today would clearly arbitrarily push the price above the real market. The problem we have is contracts entered into under NGPA which are unrealistic and use the Federal ceiling as a floor. To break that vicious circle, we had to put in some provision and provide for this transition period.

Clearly, we put the pressure downward on the price, and I know there are those who object to having that downward pressure on the price.

Senator **Ford**. Senator Johnston asked you a few moments ago about his problens that he is facing. I think there will be whole cities that will be unemployed if we deregulate old gas, and I don't care what anyone says. I believe we are walking right into a dual system, and you have to prove to me it is not a dual system. You are going to find those prices are going to accelerate to the point where tens of thousands of people are going to be put out of work, and no one seems to care whether they do or not, as long as you take care of some big ones, and the big ones own it, as you said in your testimony, the paper you gave to me, the flow of cash from the big majors.

It just bothers me a great deal. Let me ask you, when will we get an EIA analysis?

Secretary HODEL. An EIA analysis, Senator?

Senator FORD. NGPA and S. 615?

Secretary HODEL. I don't know if one is being done. I will check and find out if one is under way, and I will provide you that information.

[The following was received by the committee:]

This information is presently being developed and will be contained in an EIA study to be released in May.

Senator FORD. Thank you, Mr. Chairman.

The CHAIRMAN. Thank you, Senator Ford. Senator Nickles?

Senator NICKLES. Thanks, Mr. Chairman. We have talked a little bit about the financial health of various groups. Are either of you aware of the drilling rig count that we now have in the country, what percentage it is say this year as compared to the past? I don't have figures in front of me, but I believe the active number of rigs is like, nationwide is 2,200 compared to 4,500 a year ago.

Chairman BUTLER. About half.

Senator NICKLES. In Oklahoma we are looking at about 30 percent, so we are talking about a fairly substantial amount, actually 30 percent of the rigs in Oklahoma, so we do have a lot of producers that are under chapter 11 right now, and it is happening on a very, very frequent basis, and maybe that is a part of the reason why I mentioned my concern about the rollback, how the gas caps will be computered and what effect that might have on the domestic industry.

We talked about imports earlier. Should imports be subject to the gas cap as we are having domestic production?

Secretary HODEL. We have made no proposal in this bill to deal with the imports. I think the import price will drop as I have indicated in my prior testinony, if we get our own house in order domestically.

Senator NICKLES. I think it is dropping because of the market.

If we are going to have a gas cap or price limitations on domestic production in this intervening period, shouldn't we also have that in imports?

Secretary HODEL. It seems to me that it is very difficult to figure out how we deal with a foreign supplier in a situation like this without disrupting, over a long period of time, our relations with that nation.

Senator NICKLES. How about our relations with our domestic industry?

Secretary HODEL. You have indicated the domestic industry is having great difficulty today, and I am well aware of that and terribly concerned about that as well as what is happening to the consumer. All I can say is, it is the system of Government controls of the price that was put in place that has led us to where we are today. Somehow we need to break out of that iron ring, and the only way I know to do it is move toward the free market.

In trying to move there I thought we had to do something about contract provisions and to provide some consumer protection.

Senator NICKLES. We are also talking about contracts that will be signed between this next period of time, and let me get into that. We are talking about contracts. The percentage of contracts that have take or pays in them or take or pays that are greater than 70 percent, do you happen to have those figures? If you have them, I would appreciate them.

Secretary HODEL. Senator, I don't have them.

[The requested information follows:]

The percentage of contrats with take or pay provisions that are above 70 percent is under study within the Energy Information Administration. Results should be available in May.

Senator NICKLES. I am also aware that there are contracts with imports that have take or pay provisions in those, too. Would we be rolling those back to 70 percent?

Secretary HODEL. They are not provided for in this bill.

Senator NICKLES. Mr. Butler?

Chairman BUTLER. Senator, as far as take or pay provisions are concerned, I think what you will probably find is that on average—we start using average numbers to cover a multitude of sins, but on average, most categories of domestic gas contain take or pay provisions that run 70 percent or higher, generally speaking.

I think what you also would find is that take or pay provisions for Canadian gas are at fairly substantially lower levels.

Senator NICKLES. Seventy-five and eighty percent?

Chairman BUTLER. I don't think they are that high. There may be some in newer contracts, but in older contracts it seems to me that on the basis of my recollections, and I am fuzzy in my recollections, quite frankly, that most of the pipeline companies have been able to cut back to average takes of 35 to 40 percent of what they have traditionally taken under Canadian contracts. In some cases they are also beginning to incur take or pay obligations.

Senator NICKLES. OK; that is an important point. They have incurred the take-or-pay provisions. We know that obligation would be about 70 percent?

Chairman BUTLER. Not necessarily. I am not sure the subject is that, gets you all the way there. That is something that will probably come out during the course of this.

Senator NICKLES. We have had a lot of discussion about abrogation of contracts I think domestically right now among some suppliers. We visited earlier about Columbia Gas and I think we have mentioned also North Central. Those are presently in the courts, are they not?

Chairman BUTLER. That is correct.

Senator NICKLES. Well, maybe a lot of this problem may be solved in the court and it wouldn't be necessary for us to have the one party opt out.

Chairman BUTLER. Well, you know, I think you have this problem to look at. If you take a look at the percentage of the delivered costs that natural gas makes up, and take a look at the cost that a pipeline pays for gas as compared to its return on its investment, you come pretty quickly to the point of concluding that the liability exposure to the pipelines, and I am not carrying a brief for pipelines or anybody else in this debate, may be so substantial that you wind up with a whole lot more than just one or two candidates for chapter 11 among the pipeline industry.

It is to fix that problem that I think we have got to take a serious look at our contract provision. You take a look at the other side of the coin. As far as the producers are concerned, it is fairly clear that unless they make concessions in price, and I think the industry is relatively in agreement on this, that they are going to continue to lose market, and to the extent they continue to lose market, they are going to magnify the existing problems they have got now.

Senator Nickles. I have got several questions. I am going to have to go rapid fire.

Couldn't we eliminate the problem that Senator Johnston was talking about where he has a lot of industries that went out and single contracted for low-cost gas years ago but they are still operating under the terms of those contracts? If we allow the terms of those contracts to continue, in other words, if they happen to have a low-cost gas contract, not to have the one party out, but then allow the contracts to maintain their sanctity? Then we wouldn't be imposing a very dramatic by January 1, 1985 burden on those industries. They would be faced with the situation knowing that that contract would expire and then would be looking at a market price possibly for gas upon termination of that contract, but at least they would say yes, we are on that contract.

In Oklahoma we listened to I don't know how many producers that said yes, it might benefit me. I happen to have old gas, but I still think the contract is a contract and I don't really think we should be abrogating those contracts, so we have heard a lot on the high side and a lot of that discussion, but there is a lot on the low side, too, and I think we have to look at both sides.

Any comment? Wouldn't we solve Senator Johnston's problem if we allow the contracts to run their course?

Chairman Butler. I would suggest this to you, Senator. That is certainly an option. The question is whether it is a good option. In my judgment, it is not. The reason for it is that it is extremely difficult to make judgments as between contracts which you should allow to be abrogated and which you shouldn't.

I presented in my opening statement and Secretary Hodel presented in his opening statement I think a fairly comprehensive laundry list of reasons why old gas has got to be deregulated.

Senator Nickles. I am not saying you shouldn't deregulate old gas. I am saying we should allow the contracts—if they choose to renegotiate, fine. It will be deregulated, but we shouldn't say in the middle of that—correct me if I am wrong. Aren't a lot of those contracts 20 years?

Chairman Butler. A lot of them are long-term contracts. The problem that you run into, though, is that unless you provide some mechanism for the movement upward to market clearing levels of old gas prices, you continue the market distortions that create just almost incredible problems from a policy standpoint, and to allow the contracts to run their course like that simply is not to address the problem. There is an alternative way you can do it. You can provide the statute to ramp the price up, but then that blows up a lot of other things that you have got.

Senator NICKLES. What I was saying is that we would deregulate new contracts and renegotiate the contracts, and therefore eventually when that old gas contract would expire it would be subject to the market, whatever they would negotiate, but not coming in and saying yes, you have an old gas contract, we are going to make you tear the old gas contract up or allow one party to opt out, which I think you are creating more distortion in the marketplace by saying yes, we are going to have that, and coming back and following up with the gas cap rather than just allowing the new and renegotiated to be deregulated when those contracts come, and if the parties wish to renegotiate, they can renegotiate.

Secretary HODEL. What I hear you saying—I may be mistaken—is that you would favor, as opposed to what we are proposing, that neither party have an option to abrogate an existing contract on old gas. Is that correct?

Senator NICKLES. No; If they mutually agreed to it——

Secretary HODEL. They have the right to abrogate?

Senator NICKLES. That's right.

Secretary HODEL. Neither party can abrogate a contract on old gas.

Senator NICKLES. True.

Secretary HODEL. Or have any right to abrogate the contract is really what you are saying, and that would include old gas, so that pipeline, we would have a producer today in a position where they have a dollar old gas, you could hold that producer to the old gas even if it was executed 2 years ago?

Senator NICKLES. Yes.

Chairman BUTLER. The problem with that, Senator, is that you would wind up giving the pipelines and the producers nothing more than they have right now. They have got the opportunity to make a mutual decision to renegotiate their contract right now.

What you have done with the bilateral abrogation, right of abrogation provisions, is to provide a whip, a sword of Damocles over their head. They know unless they go about their business and try to work out the problems, that sword is going to fall. It may be draconian. It may be harsh, but I think it is a reflection of the economic reality in the market, and that is, we are just not going to get to the point where we have got a relatively uniform national average price and an elimination of the distortions that are occurring as a result of partial controls unless we do something like that.

I don't like this. I don't like that. I don't like that approach terribly, and I don't think Secretary Hodel does either, but we are faced with trying to find some kind of a compromise solution that is going to get us out of this mess that we have made for ourselves.

Senator NICKLES. I think, though, that contract term would give you—you mentioned two or three times, Mr. Secretary, that you want the stability, and in this transition that you talk about I would think if you allow the contracts to run their course you would have that.

Now granted if we did that you are still going to have some abrogations. You are going to have some people that shut off on either side or both sides, and a lot of that will end up in the courts, and I don't know that any of us really know where that is going to come down. That is already the case with Northwest. I think it may be the case with some of the Canadian purchases. Some of those have been curtailed, and will probably end up in court likewise, but I think it would be moving on a really a much more stable area than you would be saying let's tear all the contracts up, and I think Senator Warner when he made his comments on money, money is of national interest, and probably every person in this room has probably bought a house at well below the market price of money, and if you have bought one in the last year you bought one really you think you would like to have that contract renegotiated, too, and if we followed this philosophy, I don't know that it couldn't be extended.

I think there is a difference, Mr. Butler, if your companies said well, we had wage and price controls, yes. You weren't talking about rollbacks which you have in here with the gas cap, and you weren't talking about tearing up long-term contracts that already were in existence which is exactly what we will be doing under this bill as it is today.

Secretary HODEL. The practical effect of what you are proposing is basically to say let's keep NGPA.

Senator NICKLES. No, no.

Secretary HODEL. May I suggest that it is? Because what you are saying is these contracts will continue, and only I gather when the contracts run out for old gas do you then have the right to negotiate.

Now in that circumstance, I think we are right back in the box we find ourselves in now, that we will have excess abandonment of wells. We will have less of that old gas, low-cost gas, representing the market, and I think that is one of the serious problems we have in today's situation.

I feel very strongly we must try to move toward that free market. We don't move toward the free market nearly rapidly enough if basically those who run under contracts today—I don't know how many years those contracts run; 40 or 50?

Senator NICKLES. Do you have any studies to—you have got a lot of 104 contracts. Do you have any studies that indicate where the status of those are?

Secretary HODEL. No, I really do not, and probably thousands, absolutely thousands of contracts.

Senator NICKLES. Wouldn't they be rolling over probably on an annual basis?

Chairman BUTLER. You have contracts that expire, terminate, by their own terms. There is no question about that. You will have old gas that is being depleted, but trying to get a handle on just exactly where you wind up, it is very hard.

The only way we can really work on it is the estimate that DOE and EIA have come up with as to how much old gas is going to be around in 1985 and again in 1990, and the indications that I have seen are that you are going to have about 40 percent of old gas around in 1985 and about 25 percent of it in 1990, which means that 15 percent of it is going to be gone for one reason or another, perhaps because of a rollover of the contract or because of depletion or what have you during that interim, but the fact is that even in 1990 under those circumstances if you still have got a cushion of that magnitude, you are still going to have distortions of the kind we have got in the marketplace right now.

They won't be as bad by definition because the positions become smaller, but you still have a big enough cushion in 1990 to create a lot of very serious problems in the market.

Senator NICKLES. I have always advocated that we decontrol old gas. Don't misinterpret that, but I have always advocated the sanctity of contracts, and I don't see how you can get around this problem of imports. Granted that the 107 deregulated portion that we have in domestic is now roughly equal to imports. I don't think that two evils make a right. I don't want to be coming up with an amendment that says we have to have a gas cap apply to imports. I can't see this inequity of domestic versus foreign.

Chairman BUTLER. We didn't have a chance to talk about your import question a few minutes ago. When you look at the border price, first of all, there is something that tends to be a little confusing I guess or obscure about what that border price represents.

That border price represents not only the wellhead price that is paid to Canada, but also the cost of transportation from Alberta, in some cases British Columbia, so a pipeline cost is built into that as well.

Now when you look at the net back to the wellhead, the question you have got to ask yourself is, is that consistent with what our pricing policies ought to be down here which hopefully I think we all would agree should be market responsive.

We know that the Canadians have been seriously concerned about the loss of their market down here. It appears to be the case that they want to try to regain those markets. It has been widely reported in trade press, and I think you alluded a few minutes ago to some of that, that they are going to make some pricing concessions. They don't have any choice, and I think that what we have to do is to take a look and see.

Now you ask yourself the question why do they make that choice? Assuming that they do make those concessions, I think it is a realization that they have got the market, the realization that their gas prices have largely been price supported by continuing controls on old gas, and I think that what you will find if we do something to comprehensively resolve the old gas problem, they will be driven forcibly and quickly in the direction of concessions, price concessions, that are market responsive.

The CHAIRMAN. Senator Nickles, I understand you have a few more questions. I think Secretary Hodel has a speech downtown at 1 o'clock. Is that correct?

Secretary HODEL. That is my understanding, Senator. I thought this was awfully important.

The CHAIRMAN. I understand that. I don't know whether we are rescuing you from bad food or depriving you of the opportunity to have lunch.

Secretary HODEL. You are rescuing others from a bad speech.

The CHAIRMAN. Mr. Butler, do you have problems staying a few minutes longer?

Chairman BUTLER. Not at all, sir.

The CHAIRMAN. I have to go to the floor, and if it is all right with you, Senator Nickles, I will turn the gavel over to you. You can adjourn the meeting.

Senator NICKLES. I thank you. Senator Johnston, do you have additional questions?

Senator JOHNSTON. No.

The CHAIRMAN. Thank you. Before going, let me thank both witnesses today. I do appreciate the fact that these questions that have been asked are difficult and sometimes based on subjective analysis, but I think we should all understand that subjective analysis is not without bias perhaps, but nevertheless is not lacking in factual background for the analysis.

I appreciate your testimony this morning.

Senator NICKLES [presiding]. Continuing on the train we were on, Mr. Butler, as far as the import question, did you answer me as far as whether or not they should be under the gas cap provisions?

Chairman BUTLER. As far as the gas cap provisions, there are probably some credible arguments made, but I am not sure that you are going to find that you wind up with a very satisfactory response if you include them. Under today's circumstances import prices are now, they tend to bias the cap upward. Pipelines are not going to like that. Producers should favor it.

Senator NICKLES. Let's make sure we are on the same wavelength. You are talking about determining the gas cap price?

Chairman BUTLER. Yes.

Senator NICKLES. My question was should they be subjected to the gas limitations?

Chairman BUTLER. I am not sure there is a way we can do that without, as Secretary Hodel mentioned a few minutes ago, without disrupting the opportunity that I think that we have to try to renegotiate sonething more sensible.

Senator NICKLES. My Secretary, I know you need to leave and I will let you go, but does it make sense to say yes, we are going to have a gas cap limitation let's say of $2.50 just for who knows, but let's say for 102 and 103, when right across the border—and we talk about, we have singled out Canada, but Mexico would apply. LNG would apply. Does it make any sense whatsoever to say yes, this is going to be a domestic price limitation of $2.50 for a period of 1 or 2 years, to have that and then to turn around and negotiate a contract with Canada let's say for $4?

Secretary HODEL. No, but nobody will. You said negotiate a contract with Canada for $4. Nobody is going to negotiate that with Canada. There is no incentive to negotiate a $4 contract.

The problem that I have with the question is what about the existing contracts with Canada being at some price higher than the cap?

Senator NICKLES. Should they be rolled back? I apologize for that.

Secretary HODEL. It is a relatively small percentage of the overall, and I believe that we will see, I really believe you will find there is just no way the Canadians are going to continue those prices with their clear and apparent desire to be long-term suppliers of much larger volumes than presently are being shipped to the United States. Their own producers are conplaining about their problems in finding even what they thought they had existing under take-or-pay provisions of the United States. Therefore, it seems to me there is a tremendous incentive for them to come down. I guess what I am saying is it wouldn't be fair if the Canadians were able to sell all their gas in the United States at $4.94 when we think the cap will be closer to $3, but the cap is below present 102, 103 prices. That would not be fair, but what I am saying is I don't think we run that risk to any substantial extent.

Senator NICKLES. Do you have any problems then—here again I don't want to do this, but I have never said two wrongs make a right, but if you put the gas cap and roll back existing domestic prices, should we have that gas cap and roll back import prices at the same time?

Secretary HODEL. I don't know. I don't know what the legal and constitutional implications are with regard to the foreign supply.

Senator NICKLES. We are going to worry about their constitutional rights, but what about the constitutional rights of our domestic industry?

Secretary HODEL. We have crossed the constitutional rights bridge with domestic industry through the interstate commerce clause for a long time in this country. I said my problem is the policy involvement, the constitutional provision, because the constitional provision on contracts applies to States, but we come right back that it is a very difficult question for me to deal with for you because I sympathize with precisely what you are saying. First of all, I don't like what we have proposed to do with contracts. I see no alternative to it. I don't see that it is necessary, in the case of foreign contracts, to achieve the objective that we are seeking to achieve, which is free market, and I think the Canadians will be there under that proposal.

Senator NICKLES. I just see a real inequity, a very, very strong inequity particularly when we are talking about the same—we have two deregulated markets, 107 and imports, and what we are doing and what we are going to do to 102 and 103 contracts, and then freezing 107's, and then to turn around and say yes, we are going to allow one party to opt out and then not do that on imports, it seems like we are going to be perpetuating an advantage to then over domestic production and subsidizing their governments at the same time.

Secretary HODEL. My recollection, Senator, is the freeze on 107 is above the price at which the Canadians are selling gas to the United States. Less than 1 percent is priced below the Canadian price.

Senator NICKLES. Well, I was going to say there is a lot of different prices on 107. I have yet to hear enough coming from the administration, acknowledgement that 107 price has gone really down to hovering around 102 gas. We had new contracts. We heard producers tell me they would be pleased if they could get a contract and they were looking at contracts that were $3.30 and in that neighborhood, so everybody always talks about 107, 8 or 9. I don't say there is not those contracts there, but there is not any new 107 contracts that are going in at $8 that I know of.

Secretary HODEL. I don't think any new Canadian contracts will come in at $4.94, to make the parallel complete. I think the percentage of 107 that is above or at the Canadian price—and I don't know whether we can find out, but I would like to try. It wouldn't surprise me if the percentage of 107 is not totally dissimilar from what we are getting from Canada at this point.

[The following was received by the committee:]

Less than one percent of 107 gas is priced below the Canadian price.

Senator NICKLES. I think they are probably fairly similar, and here again, this is a part of this inequity. If we are going to leave them out and we are going to turn around and tear up contracts here, I think there is a lot of inequity. This contract sanctity thing, and Senator Warner I think made a good point, if we can apply this in this area of long-term, fixed contracts for commodities—if I enter into a contract for a home at 17 percent, and I tbink I would like to tear that contract up, too, I don't know where it would stop.

Secretary HODEL. I just think that the analogy breaks down. I just don't think they are comparable situations, and I think that what we are faced with here is the question of, can we get to where we need to go in natural gas if we do not move to the free market?

Our conclusion is we cannot. We have to try to move to that free market which results ultimately in a total decontrol. Then the alternative of keeping and protecting and carving out exceptions, I think, is deleterious to that effort and ultimately will force us back into a recontrol posture because of the exceptions that occur at the margin in those kind of activities.

Senator NICKLES. Let me touch on one other thing, and possibly, Mr. Butler, you could tell us. I am not that familiar with Columbia Gas 'recent decision. I was reading it is a rollback of 50 percent of all take or pays?

Chairman BUTLER. That is my understanding. I did not read the newspaper article. I was traveling, but I was informed this morning what they did was cut back 50 percent across the board.

Senator NICKLES. Did that apply down? Did that apply to 102's and 103's?

Chairman BUTLER. Across the board is my understanding.

Senator NICKLES. I am not trying to single out Columbia Gas or am not trying to single out Northwest and some of these others, but if you have that type of we are talking about rolling back some contracts or abrogating contracts, whatever terminology one might use, and the price is in the neighborhood of $3.00, $3.30 or if it is 103 it would be $2.70 something, I find that, or staff has informed me there is now 19 requests pending before DOE for import authorizations of $4.94, for an import, and most of them at 75 percent are take or pay, and I don't want again by having the gas cap come in here or by abrogating one party out to actually single out—I guess the only area that would really be decontrolled then would be imports, actually encouraging more money to be drifting abroad, more money, more jobs?

I see those wells in Canada and Mexico, those are old wells, too. If they were in the United States a greater percentage of them would be 104.

Secretary HODEL. I don't see new contracts being entered into with the Canadians if this bill passed as long as we have a surplus in the United States. We think, if we bring additional supplies of old low-cost gas up to the market, if our market clearing price is

$2.95, it doesn't seem to me, I have trouble relating that to how there would be 19 applications.

Those 19 applications, of course, are at the present time, under the existing law. These people would have every incentive to buy $2.95 gas.

Senator NICKLES. Could you give the committee a rundown on what you do have pending? I would appreciate that.

[The requested information follows:]

The information requested by Senator Nickles is found in the attached copy of a March 10, 1983, report entitled "Summary of Contract Terms for all Current and Pending DOE/ERA Import Authorization."

Summary of Contract Terms for All Current and Pending Import Authorizations

Current Authorizations 1/

U.S. Importer	Canadian Exporter(s)	NEB Export License No.	Price MMBtu	Take-or-Pay	Amount MMcf	NEB Exp. Period	U.S. Point of Import	ERA(FPC) Docket No.
Great Lakes Transmission Company	Trans-Canada	GL-20 GL-37	$4.94	75% x DCQ 2/ x days/yr with make-up contract + 1 yr	331/day 120,761/ year	10/31/91 10/31/90	Noyes, Minn.	CP66-118 CP70-19 CP70-100 CP71-222 80-13-NG
Great Lakes Transmission Company	Trans-Canada	*	$4.94	no take-or-pay	up to 18 Bcf best efforts	*	Noyes, Minn.	78-011-NG 82-14-NG Op.& Ord.47
Inter-City Minnesota Pipelines, Ltd.	ICG Transmission Ltd.	GL-28 GL-29	$4.94	65% X DCQ x days/yr	25/day 9,037/ year	10/31/95 10/31/95	Warren and International Falls, Minn.	79-29-NG 80-01-NG
Michigan Wisconsin Pipeline	* ProGas	GL-56	$4.94	85% x DCQ x days/yr or FERC Factor	75/day 27,375/ year	10/31/87	Noyes, Minn.	CP-70-22 79-15-NG Op.& Ord. 32
Michigan Wisconsin Pipeline	Trans-Canada	GL-38	$4.94	75% x DCQ x days/yr	50/day 18,299/ year	10/31/90		CP70-22 Op.& Ord. No. 577
Midwestern Gas Transmission (Northern System)	Trans-Canada	GL-18 GL-39 GL-60	$4.94	75% x DCQ x days/yr	353.9/ day 128,937/ year	11/15/92 10/31/90 12/14/85	Noyes, Minn.	G-18316 CP66-121 CP70-25 77-004-NG
Midwestern Gas Transmission (NS)	Trans-Canada	GL-18	$4.94	no take-or-pay	up to 114 Bcf best efforts	11/15/92	Noyes, Minn.	82-14-NG Op. & Ord. 47
Montana Power ** Company	Canadian-Montana Pipeline Co. Ltd.	GL-5 GL-17 GL-25 GL-36 GL-52	$4.94	No Take-or-Pay	107/day 39,200/ year	6/30/86 6/30/86 6/30/86 6/30/86 10/31/87	Whitlash and Babb, Mont.	79-18-NG Op. & Ord. 23
Natural Gas Pipeline Co. of America	*** ProGas	GL-56	$4.94	75 % x DCQ x days/yr or FERC Factor	75/day 27,375/ year	10/31/87	Minnesota Border (Emerson, Manitoba)	79-15-NG Op. & Ord. 32

1/ These are imports under ERA jurisdiction. There are other imports using ANGTS facilities that are under FERC jurisdiction.

2/ DCQ=Daily Contract Quantity.

* Gas commenced flowing November 1, 1982.

** Montana Power's purchase agreement with Canadian Montana does not contain a take-or-pay provision, however, the Gas Purchase Contracts between Canadian-Montana and Canadian producers minimum bill and take-or-pay provisions.

*** One year extension for the best efforts volumes with no take-or-pay to October 31, 1983.

Current Authorizations

U.S. Importer	Canadian Exporter(s)	NEB Export License No.	Price MMBtu	Take-or-Pay	Amount MMcf	NEB Exp. Period	U.S. Point of Import	ERA(FPC) Docket No.
Northern Natural Gas	Consolidated Natural Gas Ltd.	GL-61	$4.94	75% x DCQ x days/yr	200/d 73,000/ year	10/31/87	Noyes, Minnesota	82-09-NG Op. & Ord. 48
* Northwest Pipeline Company	Westcoast Transmission Co.Ltd.	GL-4 GL-41	$4.94	35% x con. quantity/yr	961/d 373,656/ year	10/31/87 10/31/89	Sumas, Wash. and Idaho border	81-31-NG Op.& Ord. 38
** Pacific Gas Transmission	Alberta & Southern Gas Co. Ltd.	GL-3 GL-16 GL-24 GL-35	$4.94	35% x DCQ x days/yr	1,023/d 373,488/ year	10/31/87 10/31/89 10/31/93 10/31/87	Eastport, Idaho	81-09-NG Op. & Ord. 29 & 29-A
St. Lawrence Gas Company	Niagara Gas	GL-6 GL-55	$4.94	75% x DCQ x days/yr after 10 Bcf annually	43/d max 9,700/ year max	6/30/87 10/31/87	Massena, New York	80-11-NG Op.& Ord. 33
Tennessee Gas Pipeline Co.	ProGas	GL-56	$4.94	85% x DCQ x days/yr or FERC Factor	75/d 27,375/ year	10/31/87	Noyes, Minnesota	79-15-NG Op. & Ord. 32
Tennessee Gas Pipeline Co.	Sulpetro, Ltd.	GL-57	$4.94	80% x DCQ x days/yr	37.5/d 11,000/ year	10/31/83	Noyes, Minnesota	79-08-NG Op. & Ord. 17

* Northwest's take-or-pay obligations are approximately 35 percent of the annual contract quantity.

** Through a contract amendment, effective April, 1981, and extended for two years in the summer of 1982, through June 30, 1984, PGT was afforded a 15 percent reduction in the minimum purchase requirements in its Canadian contract.

Current Authorizations

U.S. Importer	Canadian Exporter(s)	NEB Export License No.	Price MMbtu	Take-or-Pay	Amount MMcf	NEB Lic. Exp. Date	U.S. Point of Import	ERA(FPC) Docket No.
Texas Eastern	ProGas	GL-56	$4.94	85% x DCQ x days/yr or FERC Factor	75/d 27,375/ year	10/31/87	Noyes, Minn.	79-15-NG Op.& Ord. 32
Transcontinental Gas Pipe Line Co.	Union Gas Ltd.	GL-64	$4.94	Volumes: Apr-Dec.7.5bcf; Jan-Mar. 2.5BCF	10bcf/yr SNG displace eq. amount	10/31/87	River Rouge, Michigan	80-14-NG Op. & Ord. 24
Transcontinental Gas Pipe Line Co.	Sulpetro	GL-57	$4.94	80% x DCQ x days/yr	37.5/d 11,000/ year	10/31/83	Niagara Falls,NY	79-08-NG Op. & Ord. 17
Vermont Gas Systems, Inc.	Trans-Canada	GL-19	$4.94	75% x DCQ x days/yr after 10 Bcf annually	25.6/d st.11/1/82through 11/1/91	10/31/89	Highgate Springs, Vermont	CP76-100 80-15-NG 81-33-NG Op. & Ord. 34 & 39

Current Authorizations

Imports from Mexico

U.S. Importer	Mexican Exporter	DOE/ERA Docket No. Opinion& Order No.	Price MMBtu	Amount MMcf	Take-or-Pay	Period	U.S. Point of Import
Border Gas, Inc.	Pemex	79-31-NG Op. & Ord. No. 12	$4.94	300/d	75 % x DCQ	1/1/80 on-going	Hidalgo, Texas

Current LNG Authorizations

U.S. Importer	Docket Number	Amount	Price	Take-or-Pay	Term	ERA Docket & Order No.	Mode of Transport	U.S. Entry Point
Imports from Algeria								
Distrigas Corp.	CP77-218	43.5 million MMBtu Annually	$3.92 MMBtu F.O.B. Algeria $5.18 MMBtu regasified Everett, Mass.	17 cargoes annually	1998	77-011-LNG	ship	Everett, Mass.
Trunkline	82-12-LNG	165Bcf Annually 3.368Tcf Total	$3.92 MMBtu F.O.B. Algeria $7.13 MMBtu regasified Lake Charles, La.	100% with 3 year make-up	4/29/77 & 6/30/77 to 4/30/97 & 7/1/97		ship	Lake Charles, Louisiana
Imports from Canada								
Gas Service, Inc.	ERA-78-006-LNG ERA-80-18-LNG ERA-81-22-LNG	30,879 MMBtu annually	$5.9357	no take-or-pay	11/1/78 to 10/31/88	No. 18 No. 26 No. 30	truck	Tilton, New Hampshire
Manchester Gas Company	" " "	41,172 MMBtu annually	"	"	"	" " "	truck	Manchester, New Hampshire

Pending Authorizations

U.S. Importer	Canadian Exporter(s)	DOE/ERA Docket No.	Price MMBtu	Take-or-Pay	Amount MMcf	Period	U.S. Point of Import
Boundary Gas, Inc.	Trans-Canada	81-04-NG 3/	$4.94	75% x DCQ x days/yr	185/day 675.25 Bcf/10 years	11/1/82 or date del. st. for 10 yrs.	Niagara Falls, New York
Inter-City	ICG Trans.	82-15-NG	***TECHNICAL AMENDMENT TO INTERCITY'S AUTHORITY TO IMPORT AND EXPORT CANADIAN NATURAL GAS. NO IMPACT ON INTER-CITY'S SERVICES OR OPERATIONS IN THE UNITED STATES.				
Michigan Wisconsin	Trans-Canada	81-34-NG	$4.94	75% x DCQ x days/yr	100/day	11/1/82 or date del. st. for 10 yrs.	Noyes, Minnesota
Midwestern	Trans-Canada	81-32-NG	$4.94	75 x DCQ x days/year	222.4/day	11/1/84 through 10/31/99	Noyes, Minnesota
Natural Gas Pipeline Co. of America	Trans-Canada	82-01-NG	$4.94	75% x DCQ X days/yr	100/d	11/1/84 through 10/31/94	Noyes, Minnesota

3/ Conditional authorization issued August 9, 1982, DOE/ERA Opinion and Order No. 45; environmental determination needed.

Pending Authorizations

U.S. Importer	Canadian Exporter(s)	DOE/ERA Docket No.	Price MMBtu	Take-or-Pay	Amount MMcf	Period	U.S. Point of Import
Northern Natural Gas (Div. of Internorth)	Consolidated Natural	82-09-NG	$4.94	75% x DCQ x days/yr	300/d inc. fr. 200/d--100/d inc.	10/1/81 through 10/31/87	Noyes, Minnesota
Northern Natural Gas (Div. of Internorth)	Consolidated Natural	82-11-NG	$4.94	75% x DCQ x days/yr	300/d	10/31/87 through 10/31/89	Noyes, Minnesota
Northwest	Westcoast	82-02-NG	$4.94	65% x DCQ x days/yr	869/d	11/1/89	Sumas, Washington
Pacific Gas Transmission	Alberta & Southern	82-16-NG	$4.94	90% x DCQ x days/yr	1,023/d	11/1/84 to 10/31/00	Idaho Border
Pacific Gas Transmission	Alberta & Southern	82-17-NG	$4.94	90% x DCQ x days/yr	244.4/d	11/1/86 to 10/31/87	Idaho Border
Tennessee	Trans-Canada	81-24-NG 4/	$4.94	75% x DCQ x days/yr	300/d	11/1/82 through 10/31/92	Niagara Falls, New York
Tennessee	Can.Mont. KannGas Ocelot	82-10-NG	$4.94	83% 75% 75% x Av.Max. Daily Vol.	309/d	11/1/82 through 10/31/00	Niagara Falls, New York and Noyes, Minnesota
Tennessee	Canadian-Montana	82-18-NG	$4.94	No take-or-pay; best eff; inter. basis	84/d	pending decision 82-10-NG	Niagara Falls, New York/Noyes, Minnesota

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4/ Conditional authorization issued May 19, 1982, DOE/ERA Opinion and Order No. 44; environmental determination needed.

Pending Authorizations

U.S. Importer	Canadian Exporter(s)	DOE/ERA Docket No.	Price MMBtu	Take-or-Pay	Amount MMcf	Period	U.S. Point of Import
Texas Eastern	ProGas	82-05-NG	$4.94	75% x DCQ x days/yr	100/d	11/1/82 or as feas. for twenty (20) years	Niagara Falls, New York
Texas Eastern	Trans-Canada	82-07-NG	$4.94	75% x DCQ x days/yr	100/d + 10% on best efforts	11/1/85 through 10/31/99	Niagara Falls, New York
Texas Gas	ProGas	82-08-NG	$4.94	75% x DCQ x days/yr	186.2/d	11/1/82 through 10/31/02	Noyes, Minnesota
Transcontinental/Algonquin/Tex.East.	Pan-Alberta	81-02-NG	$4.94	85% x DCQ x days/yr	305,9/d	11/1/84 through 10/31/04	Niagara Falls, New York
Transcontinental 5/	Sulpetro	81-30-NG Op.& Ord. No. 46	$4.94	75% x DCQ x days/yr	75/d	11/1/83 through 10/31/87	Niagara Falls, New York
Transcontinental	Trans-Canada	81-29-NG	$4.94	75% x DCQ x days/yr	75/d	11/1/84 through 10/1/99	Niagara Falls, New York
Transwestern	ProGas	82-06-NG	$4.94	75% x DCQ x days/yr	66/d	11/1/82 asafeas. through 10/31/02	Idaho border (Kingsgate, British Columbia)

5/ Conditional authorization issued September 16, 1982, DOE/ERA Opinion and Order No. 46; environmental determination needed.

Pending Authorizations

As of Nov. 1, 1982

Exports from Mexico

U.S. Importer	Mexican Exporter	DOE/ERA Docket No.	Price MMBtu	Take-or-Pay	Amount MMcf	Period	U.S. Point of Import
* Flormex Energy Corporation	Pemex	82-03-NG	$4.94	n/a	150/d	six(6) years	Eagle Pass, Laredo and Reynosa, Texas

*ERA issued dismissal order December 16, 1982

Pending LNG Authorizations

As of Nov. 1, 1982

U.S. Importer	Docket Number	Amount	Price	Take-or-Pay	Term	ERA Number(s)	Mode of Transport	U.S. Entry Point
Imports from Algeria								
Distrigas Corp.	82-13-LNG	43.5 million MMBtu Annually	$5.47 MMBtu	17 reduced to 14 cargoes annually	1978 to 1998		ship	Everett, Mass.

Totals by Category of All Current and Pending Import Authorizations

Category	Total
Current Canadian Imports (ERA)	3521 MMcf daily
Current Canadian Imports (FERC Jurisdiction)	1,090 MMcf daily
Current Mexican Imports (ERA)	300 MMcf daily
Current Algerian LNG Imports (ERA)	40,244 MMcf annually
Current Canadian LNG Imports (ERA)	72 MMcf annually
Pending Canadian Imports (ERA)	3921.9 MMcf daily
Pending Canadian Imports (FERC Jurisdiction)	101.2 MMcf daily
Pending Mexican Imports (ERA)	150 MMcf daily
Pending Algerian LNG Imports (ERA)	208,500 MMcf annually

Approved and Pending Canadian Gas Import Projects (FERC)

U.S. Importer	Canadian Exporter(s)	NEB Export License No.	NEB License Expiration date	Amount Max.Bcf/y	Start-up Date	U.S.Entry Point
Canadian Gas via the Eastern Leg of ANGTS 6/						
Northern Natural Gas Company	Pan-Alberta Gas, Ltd.	GL-58 GL-62	1987	91.3 (450 MMcf/day)	Fall, 1982	Port of Morgan, Montana
Panhandle Eastern Pipeline	Pan-Alberta Gas,Ltd.	"	1987	54.8 (150 MMcf/day)	Fall, 1982	Port of Morgan, Montana
United Gas Pipeline	Pan-Alberta Gas, Ltd.	"	1987	147 (450 MMcf/day)	Fall, 1982	Port of Morgan, Montana
Canadian Gas via the Western Leg of ANGTS 6/						
Pacific Interstate Transmission Co.	Pan-Alberta Gas, Ltd.	GL-59 GL-63	1987	88 (240 MMcf/day)	n/a	Eastport, Idaho
Pending Canadian Gas via the Eastern Leg of ANGTS						
Texas Gas Transmission Corporation	Columbia Gas Development Company	GL-54	1987	10,000 Mcf/day	Nov.,1984	Port of Morgan, Montana
"	Westcoast Transmission Company Ltd.	GL-41	1989	45,000 Mcf/day	Nov.,1984	Port of Morgan, Montana
"	Columbia Gas Development Company	---	---	41,200 Mcf/day	Nov.,1984	Port of Morgan, Montana
"	Westcoast Transmission Company Ltd	---	---	5,000 Mcf/day	Nov.,1984	Port of Morgan Montana

6/ Canadian Gas is first sold to Northwest Alaskan Gas Pipeline Company and then resold to the various companies.

Senator NICKLES. Mr. Hodel, I don't want to keep you away from your other activity, so I appreciate your interest before this committee and also for some of the homework that you have done, and I just have had a brief chance to review some of your answers before the committee.

One final question. I think it is important. In determining the gas cap—this question has been asked to both of you and both of you have given slightly different responses.

I have advocated in the past that if we are going to use the gas cap, that it should be quite marketable. If you have renegotiated contracts, that it wouldn't reflect market either because it would be too high or the newer price of 107's or too low if it is 104's. My contention is if we had to have a gas cap, it shouldn't be on new contracts.

Would either of you care to address that again?

Secretary HODEL. Senator, I don't know that my answer will be any more satisfactory or any different from the last time I responded to it, but my perception is that the purpose of the gas cap is to attempt to identify what the market is. It seemed to us that, if you take the vast number of contracts that are out there, and we expect there will be something I understand called bundling of contracts, the high- and low-price contracts are brought in together and negotiated with pipelines by producers who have a mix.

Senator NICKLES. I think that would be the case with some big producers, your majors, but not so much with your independents and smaller business.

Secretary HODEL. My understanding is at least 25 percent of old gas is in the hands of independent producers. I assume those producers probably also have high-cost gas so that there will be a fair volume at least in the contract.

What occurs to me, if you did not include in that gas cap calculation those low-cost contracts that are a part of the bundling process, what you are saying is that we are determining that the market price is based upon only certain kinds of contracts, which is probably not accurate. That is why it seemed to us we should include both the highest and the lowest cost of existing contracts for renegotiation. That was the rationale, and I think it holds.

Senator NICKLES. Mr. Butler, do you care to respond?

Chairman BUTLER. At the risk of sounding like——

Secretary HODEL. Mr. Chairman, thank you for your courtesy.

Senator NICKLES. Before you leave, if we could also receive some information on the existing import authorization request for the record, we would appreciate that.

Secretary HODEL. We will do that. Thank you, Mr. Chairman.

Senator NICKLES. Mr. Butler?

Chairman BUTLER. At the risk of sounding like I am breaking ranks with the administration's bill, I will say as I said in my written answer, and also the oral testimony that I have given or prepared testimony before this body, that I share your concerns that the inclusion of renegotiated contracts may distort the cap.

What you are trading off basically is enlargement in the size of the data base against the possibility that you are going to have caps skewed one way or another.

On balance, if I had that choice to make and I were sitting where you are sitting, and you of good fortune were now sitting where I am sitting, I would feel that a cap limited to the new gas contracts, with some kind of provision to avoid excessive volatility, would probably be correct.

Senator NICKLES. I am concerned, too, granted you have a bigger scope, but if you have renegotiation, if you have a bundling, that you might have a lot of volatility in that cap, probably more so than what you have in only new, and maybe no one would know what the case would be.

Have you started to address the question should imports be included in the cap?

Chairman BUTLER. What you have in my view is an asymmetry under the bill in the sense that you don't have parallel restrictions on imported gas and on domestic gas because imported gas is not subject to the cap. So to that extent, the bill as it stands right now is not symmetrical in the way it deals with the two. But it does not necessarily follow, in my view, that the treatment of the domestic and imported gas is necessarily inequitable. It would be inequitable if we were putting ourselves in the position where we were requiring pipelines to take high-priced Canadian gas at the expense of lower priced domestic supplies. That would be obviously a rotten policy.

Senator NICKLES. Isn't that present policy?

Chairman BUTLER. It is on the books, but I am not sure that it is in practice. A moment ago you made the comment that high-cost producers were selling gas at 102 and 103 prices, and that is clearly the case, but that is the same option that Canadians are faced with.

What the bill does is to indirectly achieve the same thing which the gas cap achieved directly because it puts the Canadians in a competitive posture where they can't sell their gas unless they meet the gas cap prices.

Pipelines, to the extent they are not excessively encumbered by take or pay provisions, are going to choose to take domestic rather than Canadian gas during a period of surplus deliverability, where the price of domestic gas is cheaper.

What you are doing is sending an enormously strong signal in my view to the Canadians that either you are going to meet the market and preserve what you want as a share of it or you are not going to, and you are going to lose it just like domestic producers who are shut in right now have lost a big chunk of their share of the market.

Senator NICKLES. A lot of domestic production is shut in. I am not so sure I share your confidence that marketability will be transferred across the board, just here reading from different journals, and when I find that 19 companies have applications for imports when we hear about people saying yes, if the Canadian gas can come down $1—and I am aware of the fact yes, there might be a $1 transportation fee in there. I am aware there is $1.40 and some cents of tax, but when you add that up and say wait 1 minute, if they are willing to pay $3.50 or something in that neighborhood, for Canadian gas, at the same time maybe rolling back the price on domestic production, a lot of which is in the $3.30 range, it seems really ridiculous.

Chairman BUTLER. Maybe this will help put it in perspective. I think your question is entirely valid. It is a good question. You do have 19—I assume that number is correct; I am sure it is—import applications pending before DOE right now for new gas.

You also have a recent set of decisions that came out in the Canadian National Energy Board in which they said they had 11.3 trillion cubic feet of surplus gas, gas surplus, Canadian; 9.8 percent was authorized to be sold in the United States, and it is that gas to which those applications apply.

Now it is also clear to me based on my conversations with the Canadians that when they look at specific import applications there, or export applications in Canada, they are going to ask first of all the question are these people who are applying for this export permit taking all the gas they can take under existing contracts? And the answer, uniformly I believe, is going to be no, and the reason for that is that gas cannot be marketed under those circumstances. I don't believe CNEP would grant the export permit.

As far as the decision over in DOE is concerned, it seems to me that you look at it and say well, you know, pipelines, what are you going to do? You have got the FERC over there beating you over the head telling you that if you don't keep your load factors up they are going to hit you in the rate of return. You have got the consumer groups, public service commissions and others, attacking your PGA's, and you have got a very substantial thrust that is included in S. 615 to require the pipelines to take a loss.

Under those circumstances, it just does not make good sense that the pipelines are going to take Canadian gas at current prices in lieu of domestic production.

Senator NICKLES. We will be watching that, needless to say, as you might have been able to tell.

A couple of other questions—some have advocated that pipelines should be made common carriers. Do you have any comments on that?

Chairman BUTLER. Making pipelines common carriers I think goes too far, and the reason for that is twofold. First of all, the financial underpinnings of the pipeline are built around their status as private or contract carriers, and to get rid of that status in effect is to put the pipelines in a position where their financing may be jeopardized. Second, but from the standpoint of pipelines as purchasers of gas to meet their utility obligations, they have obligations under their contracts to take gas from producers and so forth. What happens to the pipelines under those contracts where they are required to prorate their capacity among those who wish to ship? They can't carry all their own gas. They wind up shutting in a lot of producers—the producer gets subjected to drainage problems. You wind up in a mess there.

Finally, if you go that far, you undoubtedly collide, you have two sets of public policies that collide with one another. You have a collision between the policy on the one hand that says you want competition at the buying end of the pipeline with a public utility obligation to maintain service to existing customers at the other end of the pipeline. In other words, you can't resolve easily, if at all, the obligation to prorate shipments among those who wish to ship and the contracts and utility obligations that you have to customers at the other end of the line who have a right and have paid for a certain amount of pipeline capacity. That is your essential problem.

Now it seems to me that S. 615 references a relatively sensibie middle ground because what it does is to say to the extent there is spare capacity on the pipeline, the pipeline cannot be, cannot use its powers of monopsony. That is a policy with which I am fully in accord. The first order we issued out of the Commission when I went over there was the pipeline order—that was opinion No. 125, in which we allowed the construction of brand new pipelines in the Arcola Basin in Arkansas and in Oklahoma, simply because of the fact there was only one pipeline there buying gas, and that at the prices they were willing to pay, producers weren't willing to produce.

Senator NICKLES. Another question—some have advocated or suggested that the purchase gas investment would be eliminated.

Should we have those? How long has that been policy?

Chairman BUTLER. It has been policy at the FERC since about 1973 I believe. I think purchase gas adjustment clauses are an absolute necessity simply because of the magnitude of the obligations of the pipelines in paying for the gas under their contracts.

The obligation is very, very large relative to the asset value of the pipelines. It will be very, very simple in a relative short period of time to bankrupt the pipelines if one seriously impaired their ability to flow through on a current basis the cost of purchased gas.

Senator NICKLES. Mr. Butler, one additional question—some have indicated that because a lot of contracts are tied to NGPA price levels at whatever amount, or they have possibly most-favored-nation clauses, et cetera, in their contracts, could those or should those be determined in violation of antitrust laws?

Chairman BUTLER. It is very hard for me to see how that would happen. I am not sure that I know a viable antitrust theory under which they would. Without outright collusion among the people who negotiated those contracts, it seems to me very hard to do that, they have done anything more than establish a benchmark.

Senator NICKLES. We appreciate your assistance again in appearing before this committee. I am glad this time it wasn't on a Saturday morning, but we do appreciate your assistance and also that of Secretary Hodel and the Department of Energy.

This committee will be adjourned.

[Whereupon, at 12:55 p.m., the hearing was adjourned.]

APPENDIXES

APPENDIX I

Responses of Witnesses to Additional Committee Questions

ENERGY AND NATURAL RESOURCES COMMITTEE
HEARING ON
PENDING NATURAL GAS LEGISLATION
WEDNESDAY, MARCH 9, 1983
10:00 a.m.

WITNESS LIST

The Honorable Donald Paul Hodel
Department of Energy

Department of Energy
Washington, D.C. 20585

SENATE COMMITTEE ON
ENERGY AND NATURAL RESOURCES
RECEIVED
MAR 22 1983
WASHINGTON, D.C. 20510

Official Committee File

March 22, 1983

Honorable James A. McClure
Chairman, Committee on Energy
and Natural Resources
United States Senate
Washington, D.C. 20510

Dear Mr. Chairman:

Enclosed are answers to the questions you submitted to Secretary Donald Paul Hodel following his appearance before the Senate Committee on Energy and Natural Resources on March 9, 1983, concerning the President's natural gas legislative proposal.

If you have any questions, please call Cathy Carey or Tom Pretorius of my staff on 252-4277. They will be happy to assist you.

Sincerely,

RG Rabben
Robert G. Rabben
Assistant General Counsel
for Legislation

Enclosures

QUESTIONS AND ANSWERS

Resulting from

MARCH 9, 1983, Hearing

Before the

Committee on Energy and
Natural Resources
U.S. Senate

Witness: Secretary Hodel

Senator James A. McClure

Question 1: The Administration's bill would permit producers of old gas to abrogate their contracts on January 1, 1985. The argument has been made that virtually all old gas contracts would be abrogated by producers, who would then wait for the highest bidder and eventually sell the gas at a much higher price. What is your response to that argument?

Answer: We expect that many contracts for old gas will be renegotiated prior to January 1, 1985, because some producers and pipeline companies will be interested in avoiding just such a situation. Of those contracts for old gas that are not renegotiated, many will be abrogated during 1985 by producers who would like to renegotiate the selling price of their gas upward. We do not believe that producers can afford to sit on their gas for any extended period of time. The geological factors that determine how quickly gas can be produced also impose a high economic cost on any producer who delays production of gas, only to discover that competition with other producers and the reluctance of consumers to pay high prices prevent the producer from obtaining prices above competitive levels. How much of an increase in selling price the producers will receive will depend on many factors, such as the price consumers are willing to pay for gas, quantities of gas generally available at that price, and competition with the other producers who are also attempting to obtain higher prices and possibly searching for new buyers. Depending on market conditions, if the number of producers who simultaneously abrogate contracts is large, and all are competing to sign new contracts, the market will move more quickly to a competitive level rather than hold at some level above the market-clearing price.

Chairman James A. McClure

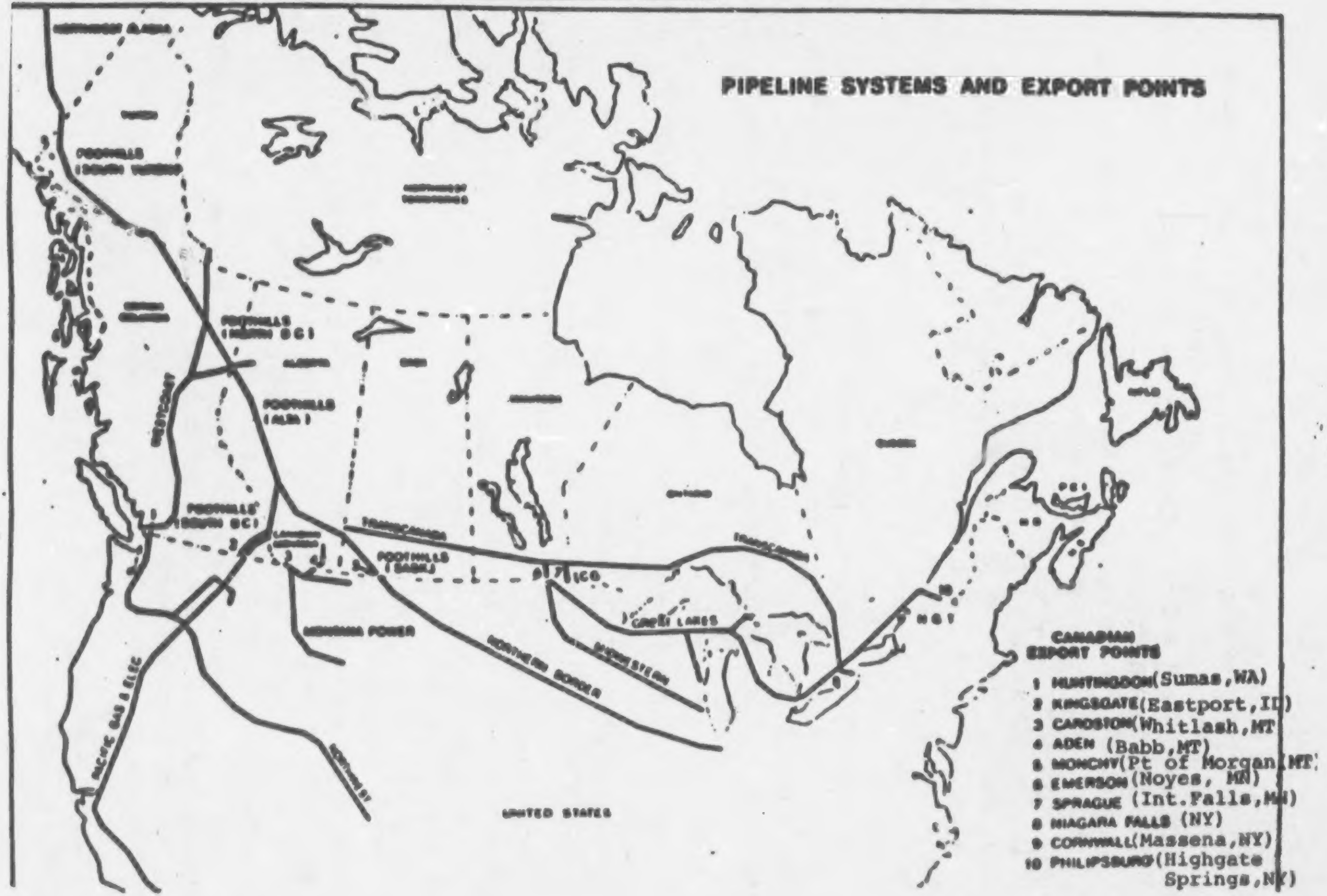
Question 2: You have estimated that enactment of S. 615 would reduce gas prices by 10 to 30 cents per mcf the first year. To what extent is that estimate based primarily on an offset theory, that is, the increase in old gas prices would be offset by reductions in new gas prices?

Answer: The price decrease is not based upon a "theory," but upon the results of a sophisticated model of the natural gas market. That model and its results are described in a February 28, 1983, DOE analysis titled "Analysis of Natural Gas Consumer Regulatory Reform Legislation." That model takes into account 28 NGPA pricing categories for gas from 5 supply regions, 5 demand sectors in the interstate and intrastate markets, and a wide range of economic factors in reaching an equilibrium condition. The price drop shown in the analysis results primarily from the combined effects of the take-or-pay limitations on high-cost gas, the downward pressure of the gas cap on NGPA ceilings, and the excess of deliverable low-cost gas that will enter the market under these new conditions.

Chairman James A. McClure

Question 3:	Would you agree that pipelines with small reserves of old gas would benefit if S. 615 were enacted, because they could partially replace their high-cost reserves with cheaper old gas? Assuming that the prices they would pay for the old gas would be much higher than those paid prior to enactment of S. 615, their average purchased gas costs could nevertheless decline considerably, could they not? Please comment on this potential cost reduction for certain pipelines, and provide a list of the interstate pipelines that potentially would receive this type of net benefit from enactment of your bill.
Answer:	Pipelines with high-cost gas will benefit from S. 615 because they will be able to reduce their contractual obligations to take large quantities of expensive supplies. These pipelines will then be free to substitute cheaper gas, which is currently available, and their average purchase gas cost should decline. In addition, we believe that the proposal provides the incentive for the production and utilization of low-cost gas first; the NGPA, on the other hand, encourages the production of high-cost supplies even when lower cost supplies are available. The Department has analyzed how the Nation will fare if S. 615 is enacted. We estimate that average wellhead prices should fall from 10 to 30

Source:National Energy Board, Reasons For Decision(November, 1979).


PIPELINE SYSTEMS AND EXPORT POINTS
FOOTHILLS (SOUTH YUKON)
FOOTHILLS (NORTH B.C.)
FOOTHILLS (ALTA.)
FOOTHILLS (SOUTH B.C.)
FOOTHILLS (SASK.)
WESTCOAST
TRANSCANADA
MONTANA POWER
NORTHERN BORDER
MIDWESTERN
GREAT LAKES
ICG
NGT
PACIFIC GAS & ELEC
UNITED STATES
NFLD
CANADIAN EXPORT POINTS
1 HUNTINGDON(Sumas,WA)
2 KINGSGATE(Eastport,ID)
3 CARDSTON(Whitlash,MT
4 ADEN (Babb,MT)
5 MONCHY(Pt of Morgan,MT)
6 EMERSON(Noyes, MN)
7 SPRAGUE (Int.Falls,MN)
8 NIAGARA FALLS (NY)
9 CORNWALL(Massena,NY)
10 PHILIPSBURG(Highgate Springs,NY)

cents in the year following enactment and continue to be lower than what prices would have been under the NGPA through 1985. However, the Department has not analyzed the effects upon individual pipelines.

Chairman James A. McClure

Question 4: Would S. 615 alter existing State law or authority pertaining to State regulation of wellhead gas prices? Would the bill remove all Federal preemption of State pricing authority? Would it affect State regulation of intrastate pipelines, in terms of implementation of Title IV of S. 615? Would the bill affect the legal status or implementation of section 602 of the NGPA?

Answer: S. 615 is not intended to alter the status quo regarding existing State law or authority to regulate wellhead prices of intrastate gas. The bill is not intended to affect the legal status or implementation of section 602 of the NGPA.

Title IV of S. 615 would not alter State regulation of intrastate pipelines. The general contract carriage provision (section 403) would apply only to interstate pipelines. State Commissions would regulate the transportation requirement under the take-or-pay provision (section 302) and market-out provision (section 303) according to existing State law and practice. The bill expands current NGPA authority under existing sections 311 and 312. These sections do not require any intrastate company to participate in these programs. The Commission may authorize an intrastate pipeline, only upon application by the pipeline, to transport, sell, or assign for the benefit of the interstate market. S. 615 would expand those sections to let gas be transported, sold, or assigned into intrastate markets, thereby increasing the flow of gas between the various markets.

Chairman James A. McClure

Question 5: Please describe the types of sales that would be encompassed in the term "first sale" and would therefore be subject to the market-out provisions of the bill. Do those provisions apply to the contracts between pipelines and gas gatherers? If not, why not?

Answer: The term "first sale" appears in the NGPA, section 2(21). It is intended to have the same meaning for S. 615 as it does for the NGPA. The use of this term in S. 615 is intended to encompass all sales the FERC has determined to be "first sales." The principal example is a sale between a producer and a pipeline, but it would cover all other first sales, such as between a producer and an end user.

The market-out provision of S. 615 would apply to a contract between a pipeline and a gas gatherer to the extent that the sale of gas by the gas gatherer to the pipeline is a first sale under the NGPA. The sale of the gas by a gas gatherer to a pipeline could be a first sale, and probably would be, even if the gas had been sold previously by the producer to the gas gatherer since there can be more than one "first sale" of the same gas.

Senator John W. Warner

Question 1: On page 7 and page 21 of your testimony you refer to proposed amendments to the Fuel Use Act. Do I understand that this legislation would amend the Fuel Use Act to eliminate the prohibition on the use of oil or gas in new industrial plants and new electric facilities? Does this proposal suggest that the Administration is any less dedicated to moving powerplants and industrial facilities away from oil and gas and towards coal? If so, how can you justify this change in policy?

Answer: The proposed legislation would eliminate the prohibition on the use of oil and natural gas in new industrial plants and new electric utilities. Current economic and other market forces, such as projected certainty of supply, now drive the potential user of oil or natural gas to do the same analysis as would be required by FUA. Thus, a change in the law to remove the prohibitions will have little, if any, impact on fuel choice. This is particularly true currently for petroleum which has been price decontrolled. Once natural gas is price decontrolled, there would be no reason to maintain, in law, a prohibition that merely requires the same judgments that would be made in the marketplace. This action does not suggest the Administration is less dedicated to coal use in major boiler facilities; rather, it is our intent to let the market make the appropriate fuel choice.

Senator John W. Warner

Question 2: The provisions in your bill appear to offer consumers protection during the transition period. What protection against unwarranted price increases can we offer consumers after January 1, 1986?

Answer: After 1985, the price of gas will be determined by market forces--the selling price of gas will be influenced by the prices of alternative energy sources, such as residual fuel oil, and by the quantities of gas available for sale. By bringing competition to the gas marketplace, our legislation allows both producers and purchasers to seek the best contractual relationship they can negotiate. This means we could reasonably expect that prices would not change dramatically in a stable energy market. Indeed, as we have seen in the oil market, consumers' unwillingness to pay higher prices and competition among producers are the best means of assuring that consumers face the lowest cost mix of energy supplies.

Senator John Heinz
Gas Supply

Question 1: What is your understanding of the domestic natural gas reserves situation? How many years of proved reserves do we have?

Answer: Domestic natural gas reserves in 1981 totaled 201,730 billion cubic feet, an increace of 1.4 percent over the 1980 figure. Gross additions to reserves were 21,446 billion cubic feet during this period. In 1981, reserve additions exceeded production for the first time since the addition of Alaskan Prudhoe Bay Reserves in 1970. A significant portion of these additions, however, are the result of increased drilling activity for deeper, costlier gas supplies. In 1981, completed gas wells at depths greater than 15,000 feet increased approximately twice as much over 1980 levels than the increase in wells at all depths over the same period. Moreover, while the aggregate rate of change in drilling activity appeared to be relatively flat in 1982, the number of completed wells deeper than 15,000 feet increased more than 20 percent beyond the previous years' total. This type of drilling is encouraged by the subsidization of high-cost gas production by lower cost gas through the averaging of the costs of different NGPA categories of gas supplies.

The rapid escalation in gas prices under the NGPA has led to increased conservation and fuel switching on the part of gas consumers. This development has contributed to the creation of a large amount of excess well deliverability in field markets. In 1982, about 1,500 billion cubic feet of gas that could have been produced during the year was shut in.

At current levels of consumption, the amount of gas classified as proved reserves in 1981 would be depleted in approximately 10 years. Of course, this figure in no way is an estimate of the amount of gas ultimately available in the United States. Proved reserves are only the quantity recoverable with reasonable certainty from known fields under existing economic and operating conditions. As normal exploration continues, economic circumstances change and new technology is developed, an increasing portion of the in-place resource base will be added to the proved reserve category. These additions will come from new drilling activity in known gas fields, other exploration by producers, and more efficient methods of recovery. The United States Geological Survey estimates that future discoveries of gas in the United States could range from 475 to 739 trillion cubic feet. These estimates are historically inaccurate, however, and USGS low and high estimates have been revised upward since 1975 by 47 percent and 12 percent, respectively.

Senator John Heinz
Gas Supply

Question 2:	Has the reserve to production ratio improved in recent years?
Answer:	From 1955, the first year following the initiation of wellhead gas price controls, the reserve to production ratio fell from 22.12 to a low of 10.44 in 1979, following passage of the NGPA. Since then, it has climbed slowly to 10.76 in 1981. This large decrease reflects increased demand for gas priced at below-market clearing levels, particularly in the late 1960's and early 1970's, as well as the lack of incentives for producers to explore for new reserves in a price-controlled market.

Senator John Heinz
Gas Supply

Question 3: Would you agree that it should be improved? Why?

Answer: From an economic perspective, reserves may be viewed as working inventories, recognizing the pattern for estimates of recoverable gas to be revised upwards as fields are extended or more intensively developed when economic incentives dictate. In a freely operating field market, producers will establish a level of inventories that enable them to meet consumer demand over time without incurring unnecessary costs by maintaining a higher well deliverability than is required. It is, however, impossible to know in advance the optimal reserve-to-production ratio that would be established if wellhead prices were deregulated; since this is a deregulated function the most efficient ratio can be expected to occur in a deregulated market.

Senator John Heinz
Gas Supply

Question 4:	The Administration's bill, S. 615, provides for decontrol of old gas, correct?
Answer:	The Administration's bill provides for the movement to a free market for all categories of gas, including old gas.

Senator John Heinz
Gas Supply

Question 5: What effect will old gas decontrol have on the domestic gas reserves picture? Do you have any studies to indicate this effect? Please supply them for the Committee's review.

Answer: The Administration's "Analysis of Natural Gas Consumer Regulatory Reform Legislation," February 28, 1983, used conservative assumptions that aggregate reserve additions over the entire projected period would be the same under the proposal as under the NGPA. In fact, we expect that more intensive development activity in known fields will lead to a much greater recovery of old gas reserves, following the same pattern of events that occurred with deregulation of crude oil prices. Although we believe the oil price analogy to be a valid one, I know of no definitive studies on the subject except to say that actual production of crude for 1982 exceeded all estimates of OTA, GAO and CBO from the time decontrol of oil occurred.

Senator John Heinz
Gas Supply

Question 6: Does your department have any studies which indicate that old gas decontrol will have a positive or beneficial effect on the domestic gas reserves picture? If so, please provide.

Answer: The Department has no such studies.

Senator John Heinz
Pipeline Accountability

Question 1:	I see that S. 615 imposes some restraints on gas pipelines' passthrough of higher gas costs (Section 603). My question is why this restraint was made temporary (until 1/1/86).
Answer:	The most efficient means for assuring that consumers have access to adequate supplies of gas at reasonable prices, and that producers have incentives to develop gas resources, is to remove impediments to a free market. Although we expect prices to drop under S. 615 and remain below NGPA levels for several years, we do not expect consumers to take our analysis on faith. The passthrough limitation provision you refer to was developed to provide consumer protection against unreasonable price increases during the transition to a free market. We believe that after January 1, 1986, the market will be working efficiently and consumers will find, just as they have in the case of petroleum and other commodities in our society, that the marketplace is effective in ensuring ample competitively priced supplies.

Senator John Heinz
Pipeline Accountability

Question 2: Do you have any studies to show what the likely effect of these temporary restraints would be on the price of gas to consumers? On the economic or financial condition of gas pipelines? On the financial condition of gas exploration and production of companies? Please provide these studies.

Answer: The February 28 analysis provides estimates of the economic effects of full passthrough of purchased gas cost increases. The table below shows estimates of the prices consumers will pay if full passthrough is allowed.

End-Use Prices Under S. 615
(Assuming Full Passthrough)

End-Use Sector	1982	1983	1984	1985	1986
Residential (1982 $/mcf)	4.86	4.76	5.07	5.32	5.76

Of course, any action by FERC to restrain passthroughs will result in consumer prices lower than those estimates shown above. We generally expect that the financial condition of pipelines will improve as a result of S. 615 because of the enhanced ability of pipelines to enter into contracts that allow them to compete more effectively with alternative fuels in end-use markets. Although some capital will be released from the production of high-cost gas, gas exploration and production companies can invest these resources more productively in low-cost gas exploration and production. We anticipate that competition will increase due to the lower capital cost of develping low-cost gas supplies. Finally, our analysis indicates that S. 615 will contribute to greater economic efficiency in the economy as a whole.

Senator John Heinz
Pipeline Accountability

Question 3: Will the pipeline cost passthrough restraints included in S. 615 be more or less rigorous than those imposed under present law? Please explain.

Answer: The pipeline cost passthrough restraint in S. 615 would be more rigorous than the restraint under present law. Interstate pipelines would be allowed to pass through the increased cost of purchased gas only after the Commission made an affirmative finding that the increases were "just, reasonable, and prudently incurred." Moreover, unlike current law, increases could not go into effect subject to refund.

In addition, S. 615 would establish a "rateable take requirement" which, in effect, would prohibit permanently the passthrough of the cost of gas produced by a pipeline or its affiliate to the extent the pipeline took the gas at a higher rate than it contemporaneously took any cheaper gas. No comparable provision is present in the NGPA.

Senator John Heinz
Pipeline Accountability

Question 4: Can you compare the S. 615 passthrough restraints with those adopted in the 12/30/82 Initial Decision of FERC ALJ Levant in the Columbia PGA case? How do they compare?

Answer: The initial decision in the *Columbia* case held that, with respect to passthrough restraints, the pipeline could not pass through costs incurred as a result of cutting back purchases of cheaper gas while it was taking more expensive gas at above contract take-or-pay requirements.

S. 615 deals with pipeline purchasing and cutback practice in two ways in the purchased gas cost provision (Title I). First, it requires FERC to consider the availability of lower cost supplies in determining whether to allow the passthrough of higher costs of purchased gas. In addition, the rateable take requirement prevents passthrough of costs if a pipeline takes gas from an affiliate or from its own production at a percentage rate of take higher than its percentage of take for cheaper gas.

Senator John Heinz
Pipeline Accountability

Question 5: Have the gas pipelines or has A.G.A. indicated their support for S. 615, particularly insofar as it relates to pipeline cost passthrough restraints? Which pipelines? What position have A.G.A. or other national organizations taken on the passthrough restraints in S. 615?

Industry Consensus

Question 1: Does the administration believe S. 615 reflects the consensus views of the gas industry? Why?

Question 3: How would S. 615 affect the smaller, independent gas exploration and production companies? Has that segment of the gas industry expressed itself on S. 615? What is the view of the smaller independents on S. 615 and why?

Question 4: What is the reaction to S. 615 from the major gas exploration and production companies such as Shell, Texaco, Gulf, Sun, etc.? Which features of S. 615 do they support? Which do they not support? Why?

Answer: In the process of formulating our natural gas proposal we consulted with a variety of interests--consumers, producers, transporters, and distributors. Most organizations have been supportive of the Administration's proposing legislation. Most also have supported some elements of our legislative package, although they have not agreed with every aspect of it.

We do not believe it would be appropriate for us to characterize the particular position or reaction of one or another interest group, except to say that the various positions and reactions expressed by a number of interests were extremely useful to us in formulating the comprehensive natural gas legislative package which we have submitted.

Senator John Heinz
Pipeline Accountability

Question 6: Do you believe FERC has in recent years limited pipeline passthroughs of higher costs to the maximum extent of its legal authority? Please explain.

Answer: Since the passage of the NGPA, the Commission's ability to prevent the passthrough of purchased gas costs has been limited. Under section 601(c) of the NGPA, the Commission must allow the passthrough of costs if prices paid were for deregulated gas, or at NGPA ceilings or below, unless it determines the prices paid were "fraudulent" or "abusive." The Commission has defined this standard narrowly. Their reading of "fraud or abuse" excludes "imprudent" practices. If S. 615 is enacted, the legal standards will change accordingly, and we are confident the FERC will implement the passthrough provision as set forth in the legislation.

Senator John Heinz
Industry Consensus

Question 1: Does the Administration believe S. 615 reflects the consensus views of the gas industry? Why?

Answer: In the process of formulating our natural gas proposal we consulted with a variety of interests--consumers, producers, transporters, and distributors. Most organizations have been supportive of the Administration's proposing legislation. Most also have supported some elements of our legislative package, although they have not agreed with every aspect of it.

We do not believe it would be appropriate for us to characterize the particular position or reaction of one or another interest group, except to say that the various positions and reactions expressed by a number of interests were extremely useful to us in formulating the comprehensive natural gas legislative package which we have submitted.

Senator John Heinz
Industry Consensus

Question 2: How would S. 615 affect the gas distribution industry? Does any part of S. 615 expand FERC's jurisdiction to regulate local gas distribution companies? How about section 401 (authorizing FERC to order local distribution companies to transport natural gas on behalf of "any person")? What is the rationale for this section?

Answer: S. 615 would help local distribution companies in two important ways. The provisions that make wellhead prices sensitive to market signals, in combination with the limitation on the passthrough of increased purchased gas costs, would stop the incessant increases in the cost of gas acquired from interstate pipelines. At the same time, the contract carriage provision would let distributors seek the lowest cost gas available by facilitating dealing directly with gas producers.

S. 615 does not expand the Commission's jurisdiction to regulate local distribution companies. The amendments to section 311(a) of the NGPA in our bill would permit the Commission to authorize a local distribution company to transport gas, but only to the extent that the company applied for the authorization. This is a voluntary decision by the distributor, and FERC's role is limited to the particular transaction.

This expansion of section 311(a), as well as of sections 311(b) and 312, is intended to facilitate voluntary arrangements among members of the gas industry to move gas between the interstate market and the intrastate markets in order to avoid a shortage in any market.

Senator John Heinz
Industry Consensus

Question 3:	How would S. 615 affect the smaller, independent gas exploration and production companies? Has that segment of the gas industry expressed itself on S. 615? What is the view of the smaller independents on S. 615 and why?
Answer:	In the process of formulating our natural gas proposal we consulted with a variety of interests--consumers, producers, transporters, and distributors. Most organizations have been supportive of the Administration's proposing legislation. Most also have supported some elements of our legislative package, although they have not agreed with every aspect of it. We do not believe it would be appropriate for us to characterize the particular position or reaction of one or another interest group, except to say that the various positions and reactions expressed by a number of interests were extremely useful to us in formulating the comprehensive natural gas legislative package which we have submitted.

Senator John Heinz
Industry Consensus

Question 4: What is the reaction to S. 615 from the major gas exploration and production companies such as Shell, Texaco, Gulf, Sun, etc.? Which features of S. 615 do they support? Which do they not support? Why?

Answer: In the process of formulating our natural gas proposal we consulted with a variety of interests--consumers, producers, transporters, and distributors. Most organizations have been supportive of the Administration's proposing legislation. Most also have supported some elements of our legislative package, although they have not agreed with every aspect of it.

We do not believe it would be appropriate for us to characterize the particular position or reaction of one or another interest group, except to say that the various positions and reactions expressed by a number of interests were extremely useful to us in formulating the comprehensive natural gas legislative package which we have submitted.

Senator John Heinz
Industry Consensus

Question 5: Should the average industrial gas consumer support S. 615 and why? What indication do you have that gas consuming industries support S. 615?

Answer: Yes. The industrial consumer wants to ensure adequate supplies at the lowest reasonable cost and knows that a competitive marketplace does this automatically. In testimony before the Senate, several groups representing industrial gas consumers supported the general thrust of S. 615. They expressed a belief that S. 615 will not mean higher bills for consumers, and went on to express concern that continued price controls would damage long-term supply security despite the existence of the so-called bubble.

Other reasons industrial gas consumers support S. 615 include:

- o S. 615 repeals incremental pricing, which unduly shifts cost increases to a subset of gas consumers
- o S. 615 repeals PIFUA restrictions which are unnecessarily restricting gas demand in the current market

- Contract carriage provisions improve their access to gas supplies

- Industrial consumers realize that competitive disadvantages and advantages based on the cushion of old gas distort the marketplace

Senator John Heinz
Industry Consensus

Question 6: Should the average voter/gas consumer support S. 615 and why? What alternatives to S. 615 did you consider that might offer more direct economic benefits to the Nation's residential gas consumers? Would any of these alternatives provide as much as $25 billion in gas consumer price relief in the first year? Please explain.

Answer: The average consumer should support S. 615 because our plan to move to a free market for gas at the wellhead offers the most efficient means for assuring that consumers have access to adequate supplies at reasonable prices. We are projecting that S. 615's benefits to consumers over the next 8-year period, compared to what would be obtained if the NGPA merely played out, will be at least $7 billion, using a discounted present-value calculation. This indicates that a decline in price of only a few cents from that which would be expected under NGPA has a substantial effect on costs to consumers. If one assumes that oil prices, for example, might be lower in the near term than was assumed in our analysis, the near-term benefits to consumers could be much larger. In addition, as the price of gas declines it will lead to increased pressure for lower oil prices as a result of competition.

We also have examined the possibility that the partial decontrol provisions of the NGPA might be revoked in coming years and that the NGPA price controls could be extended indefinitely. Our analysis projects that continuation of price controls would result in wellhead prices that are about 28 cents, or 6 percent, lower in 1990 than those projected under a continuation of the NGPA, for those who could get access to gas. However, these lower prices impose a large cost on the economy since they in all likelihood would lead to shortages and curtailments. Future controlled prices would discourage domestic production of gas and cause from 200 billion cubic feet to 1 trillion cubic feet of curtailments in the late 1980's. Price controls and lower national average prices also would induce relatively higher total demand for gas, causing consumption levels to be higher by 600 billion cubic feet by 1990.

There does not appear to be an effective way to save consumers as much as $25 billion in the first year without major immediate price rollbacks, substantially in excess of $1.00 per mcf (average wellhead prices were $2.70 per mcf at the end of 1982). Such an effort would have rapid negative effects on both producers and consumers, quite likely placing the market in a much more severe curtailment position than was experienced in 1976-77.

Senator Pete V. Domenici

Question 1: On page 6 of your testimony you list, as one of the key principles in moving towards a free market for natural gas, the principle that there be "freedom to negotiate new contracts." The Administration's proposal goes a step beyond that "freedom." It would provide for the abrogation of all contracts not entered into after the enactment of this legislation or not renegotiated prior to 1/1/85. By providing this legislative market-out, is the Administration saying it does not believe that there are incentives to renegotiate existing contracts under the terms of those contracts?

Answer: Under current law, there are incentives to renegotiate existing contracts. However, there are also costly impediments to such renegotiations. As an example, producers will be unable to justify to shareholders why they would voluntarily renegotiate a high price for gas to a lower price without a clearly recognized, action-forcing event.

Existing contracts were agreed to by both parties when the regulatory conditions created by the NGPA were expected to remain in effect. We believe it is necessary to avoid causing undue harm or benefit to either party to an existing contract when the regulatory circumstances affecting that contract are altered significantly. We also believe it is important that existing contracts be renegotiated quickly in order to provide consumers with the economical benefits of S. 615. We believe that the array of incentives provided by S. 615, including the market-out, gas cap, and PGA restriction provisions, offer unambiguous incentives that overcome the impediments mentioned above and facilitate rapid movement to a free market.

Senator Pete V. Domenici

Question 2: Could you provide the Committee with the number of contracts that would expire under their own terms during 1983, 1984, 1985, and 1986? Please provide those by NGPA gas category and provide the volume of gas covered by those contracts.

Answer: We are currently studying this and will provide this data when it becomes available.

Senator Pete V. Domenici

Question 3: On page 8 of your testimony you stated that residential consumers bear less of the fixed cost of a gas supply system when more industrial users are on that pipeline. Can you give the Committee an example of a particular pipeline where residential consumers' prices have gone up as a direct result of the loss of industrial users on that pipeline?

Answer: It appears that significant load loss to alternative fuels began to occur only in the latter part of 1982, and it still is difficult to distinguish load losses to alternative fuels from load losses due to conservation and recession. The recent experience most directly relevant to the concerns underlying the question may be that of California. There, Southern California Gas recently lost a large part of its boiler fuel load to alternative fuels. The California Public Utility Commission concluded that the result of that loss would be higher prices to other natural gas users. It therefore substantially reduced the price that Southern California Gas could charge to large boiler fuel users. As a result, SOCAL regained nearly all of the loss load.

Senator Pete V. Domenici

Question 4: On page 11 of your statement you state that you believe there is a downward price pressure in the market at this time which would lead to future acquisition prices for pipelines being somewhat lower than in the past. Could you provide a table for the Committee which includes each of the allowable prices for the NGPA gas categories and the most recent average prices contracted for in each of those categories? Please provide the weighted average price allowed for under NGPA and the weighted average price actually paid this time one year ago as well as for the most recent month for which the date is available.

Answer: Attached is a table showing: (1) the current maximum lawful price for each NGPA category; and (2) the average acquisition costs for interstate pipelines for each category over the past year. (It should be noted that the average acquisition cost will generally be greater than the maximum lawful price, because the latter does not include severance taxes and certain production-related costs.) The table shows that only the average acquisition cost of Section 107 gas has declined significantly over the past year. The decline presumably is due to pipelines exercising their market-out clauses and to their negotiating newer Section 107 contracts at a lower price; it is not possible to estimate the relative importance of these two factors. The market-out prices have been too high to have a significant effect on the acquisition cost of other categories of gas. There are widespread reports that new Section 102 contracts are being signed below the maximum lawful price, but the aggregate impact of these newer contracts on the average acquisition cost is much smaller than the impact of the continuing price increases under older Section 102 contracts.

Senator Pete V. Domenici

Question 5:	Is there any evidence that natural gas producers are experiencing this downward price pressure and responding by renegotiating existing contracts? Which categories of natural gas are experiencing renegotiation? Is this renegotiation affecting weighted average prices?
Answer:	Although we have no official information, the information that we have informally obtained from producers indicates that, on average, there has been downward pressure on new contracts and existing contracts where market-outs have been exercised. For example, since mid-1982, the average acquisition cost of section 107 gas has declined from $7.41 per mcf to $7.25 per mcf. We expect that the average cost would decline further to roughly $6.29 per mcf by the middle of this year under NGPA. Under the Administration's bill, the price of gas currently covered by section 107 will fall even further.

ACQUISITION COST

NGPA Section	Late 1981/ early 1982	Mid-1982	Late 1982/ early 1983	Mid-1983	Maximum lawful price (March 1983
102	3.08	3.27	3.43	3.61	3.34
103	2.78	2.93	2.98	2.97	2.74
104	1.27	1.33	1.40	1.24	.282 - 2.27
106	1.01	1.07	1.09	0.94	106(a) .84 106(b)(1)B 1.56
107	7.26	7.41	7.25	6.29	107(c)(1)-(4) NA 107(c)(5) 5.48
108	3.51	3.73	3.80	3.89	3.58
109	2.31	2.46	2.70	2.36	2.27

NOTES TO TABLE

Acquisition costs are taken from pipeline PGA filings. Not all pipelines have yet filed PGA's covering mid-1983, and the average prices for that period therefore are not necessarily representative of all interstate pipelines. Comparable data for intrastate pipelines are not available.

Senator Pete V. Domenici

Question 6:	While pipelines would be restricted in their ability to take affiliated company natural gas production, what would prevent a pipeline from marketing out its affiliate and transporting that gas under the contract carriage provisions of S. 615?
Answer:	Nothing in the bill would prevent this from occurring.

Senator Pete V. Domenici

Question 7: Please provide the projected supply and demand figures for natural gas for the next 5 years assuming that the Natural Gas Policy Act remains intact. Please provide those figures assuming the passage of S. 615 in 1983.

Answer: Table 1 presents the estimated price and quantity of gas supplied and consumed in the natural gas market under the NGPA and under the Natural Gas Consumer Regulatory Reform legislation (assuming speedy 1983 passage).

These projections assume that the price of oil slowly decreases from $34 (1982 dollars) in 1982, to a value of $31 (1982 dollars) in 1984, and thereafter the value of oil slowly increases.

Senator Pete V. Domenici

Question 8:	What are the near-term incentives under S. 615 to assure the continued addition to reserves necessary to supply our long-term demands?
Answer:	The removal of wellhead price controls eliminates inefficient subsidies to the production of high-cost gas that have existed under NGPA. This will encourage producers to intensify the development of their older, less expensive gas fields in the relatively near term. Moreover, the reduction in take-or-pay obligations will help ensure that pipelines will be able to accept this less costly mix of supplies in their systems. We expect that this activity will result in an increase in the quantity of old gas ultimately recoverable from known fields. As producers begin to receive decontrolled prices for old gas, they will be able to bring their production and development activities into balance more quickly than they would have under NGPA. Therefore, future additions to reserves will be made when these additions are most economic and will enable pipelines to meet their long-term demand requirements.

Senator Pete V. Domenici

Question 9: Some argue that the failure to decontrol 104 gas will lead to a competitive disadvantage for intrastate pipelines which do not have cheaper 104 gas as a cushion when competing with interstate pipelines for new gas. Do you believe this may happen? In what instances have interstate pipelines used their cushion of 104 gas to outbid intrastate pipelines to date? Please give a specific example.

Answer: Yes, failure to let 104 gas move to a free market price when gas prices are decontrolled will continue the competitive advantage that most interstate pipelines now enjoy by virtue of their old gas cushions. Intrastate pipelines have higher gas acquisition costs, a situation that will become more severe in 1985 with NGPA's partial decontrol scheme, but will be resolved under S. 615.

Examples of bidding disparities do exist today. Last summer the intrastate pipelines from one State testified before Congressman Sharp that, although the predominant share of new gas available in their State was deep gas, they could not acquire that gas, roll it in with cheap gas, and market it. The interstate pipelines, on the other hand, had the old gas cushion that would allow such purchases. (Prices being paid for the deep gas by interstate pipelines ranged from $6.32 to $8.33 per MMBtu.) As a result, those intrastate pipelines are losing reserves to the interstate pipelines. All net additions to reserves since 1979 have gone into the interstate market.

Some interstate pipelines with low endowments of old gas complained at the same hearing of the competitive disadvantages they incurred because of a lack of old gas supplies. They also advocated full decontrol--with a contracts solution.

Senator Pete V. Domenici

Question 10: The Administration expects an increase in gas production shortly after the enactment of this proposal. Where will that gas come from? Will there be immediate and significant additions to reserves?

Answer: A portion of the increase in production will come from the estimated 1.4 trillion cubic feet of excess well deliverability that existed at the end of 1982, and has been shut in because of current regulations. Market inflexibilities in NGPA have prevented prices from falling in the face of this surplus.

In our analysis, to be cautious, we have not assumed that there will be immediate and significant additions to reserves. Recent experience with oil decontrol, however, suggests that proper price signals can encourage drilling activity and result in more intensive development and production of the "old" reserve base than was anticipated beforehand. Reserve estimation is always an uncertain activity, and free-market activity is the only effective mechanism that would result in companies developing the level of reserve additions that are economic.

Senator Pete V. Domenici

Question 11: Please calculate the gas cap price that would be in effect today if the Administration proposal had been enacted already. If you cannot calculate this gas cap price, please explain why.

Answer: Under the $31 oil price path used in the February 28, 1983, departmental analysis, the gas cap was projected to be $2.93 per mcf (in 1982 dollars). Total decontrol, abrogation of contracts, and a free market would result in prices of about $2.60 per mcf. We assumed old gas was not renegotiated in 1983; therefore, this "cushion" still has a slight upward effect on the average prices for post-enactment contracts prior to 1985.

Senator Pete V. Domenici

Question 12:	Please provide the "allowed rate for purchased gas" for the interstate pipelines affected by this legislation if it were in place today.
Answer:	Based on the most recent data available (November 1982), the allowed rate for all interstate pipelines taken together would average about $3.00 per mcf. Of course, some pipelines will be above or below the average for an interstate pipeline.

Minority Members
General Questions

Question 1: On page 5 of your statement you talk about the competitive nature of the natural gas market.

a. Would you agree that outside the producing States, there is little competition to serve any given market between and among interstate pipelines?

b. What would your bill do to make interstate pipelines competitive? For example, would a given pipeline not now serving a city, or a State, be allowed in? What would it do to make local distribution companies competitive?

Answer: The degree of competitiveness between and among interstate pipelines varies across the country. In some non-gas-producing States there is substantial competition, whereas other areas are not even served by any pipeline. In general, it is not true that there is little competition outside producing States. An important competitive factor in the gas market is gas' competition with other fuel sources. The market prices of oil, coal, and other energy sources effectively limit the range of prices for which gas can be sold. The evidence of this under current law is the industrial load loss being experienced when prices are not allowed to drop to compete with alternative fuels.

Our bill would increase effective competition in the pipeline industry because it implicitly allows all pipelines to compete with each other. If an area becomes dissatisfied with the service of the pipeline servicing the area, it can negotiate directly with gas producers and use the pipeline for transportation services only. The bill does not address itself to the process of permitting the construction of new pipelines (though FERC has power to permit this) nor does it direct itself to the local issue of the competitiveness of distribution companies.

Question 2:	Many firms in producing States that depend on a reliable, reasonably priced supply of natural gas believe that their supplies are more uncertain and their prices higher because of the NGPA. This argument claims that the section 104 gas "cushion" permits interstate pipelines to come into these States and bid prices up and supplies away. a. What evidence do you have to support a theory that under the NGPA there is an advantage for interstate pipelines bidding for gas supplies in each of the major producing States? b. How would enactment of the Administration's bill address this problem?
Answer:	a. There is ample evidence that the cushion of old gas has created a bidding advantage for certain pipelines in the past. Just last year, intrastate and some interstate pipelines were complaining to Congress of their competitive disadvantage in acquiring new supplies caused by a lack of old gas and roll-in capacity. A pipeline with a great deal of old gas can outbid a low-cushion pipeline for deregulated supplies. Under current market conditions, most pipelines can obtain adequate supplies from their currently held reserves and do not need to buy new supplies. However, higher demand for gas due to an increase in economic activity or an increase in oil prices will make it necessary for pipelines to

Table 1

Projected Prices and Quantities of Natural Gas: NGPA and S. 615

	1982		1983		1984		1985		1986		1987	
	NGPA	S.615	NGPA	S.615	NGPA	S.615	NGPA	S.615	NGPA	S.615	NGPA	S.615
Gas Prices (1982 $/mcf)												
Average domestic wellhead	2.70	2.70	2.81	2.60	3.01	2.95	3.26	3.15	3.63	3.60	4.05	4.08
Residential	4.86	4.86	4.95	4.76	5.14	5.07	5.34	5.32	5.72	5.76	6.12	6.22
Industrial	3.67	3.67	3.74	3.58	3.93	3.89	4.24	4.06	4.62	4.49	5.03	4.94
Consumption (tcf)												
Residential	4.64	4.64	4.50	4.55	4.45	4.49	4.43	4.45	4.37	4.37	4.30	4.28
Commercial	2.66	2.66	2.66	2.67	2.65	2.66	2.63	2.65	2.61	2.62	2.57	2.58
Industrial	6.07	6.07	6.30	6.48	6.44	6.53	6.85	6.86	7.05	7.02	7.24	7.10
Utility	3.36	3.36	3.39	3.48	3.40	3.53	3.63	3.58	3.64	3.48	3.57	3.43
Other	2.12	2.12	2.14	2.19	2.15	2.19	2.18	2.18	2.18	2.15	2.16	2.11
TOTAL	18.85	18.85	18.99	19.37	19.09	19.40	19.73	19.71	19.84	19.63	19.83	19.50
Supply (tcf)												
Conventional	16.89	16.89	16.89	17.28	16.85	17.17	16.73	16.74	16.48	16.31	16.16	15.90
Unconventional	0.85	0.85	1.00	1.00	1.14	1.13	1.29	1.27	1.44	1.41	1.60	1.54
Imports	0.95	0.95	0.95	0.95	0.95	0.95	1.55	1.55	1.72	1.72	1.86	1.86
TOTAL	18.85	18.85	18.89	19.37	19.09	19.40	19.72	19.70	19.84	19.64	19.82	19.50

obtain new supplies, and partial decontrol under the NGPA will increase the bidding advantage of those pipelines that own significant amounts of old gas.

b. Under the Administration's proposal, both intrastate and interstate pipelines are free to renegotiate old contracts and enter into new contracts at market-determined prices. All pipelines can market-out of pre-enactment first sale contracts not renegotiated after enactment in 1985. These provisions smooth the transition to a free market. Over this transition period, the Administration's bill will eliminate most competitive disadvantages based upon the cushion. After 1985, there will not be a significant amount of gas priced below or above market levels. Therefore, the cushion and its associated bidding problems will no longer exist.

Minority Members
General Questions

Question 3: What does the Administration's bill do to increase the supply of gas to the intrastate market from new sources? I am particularly interested in access by intrastate pipelines and distribution companies to gas produced on the Outer Continental Shelf. Do you have any estimates of the supplies that might be available from these new sources under the Administration's bill?

Answer: By removing the bidding disparity between intrastate and interstate pipelines through the elimination of the gas "cushion," intrastate pipelines will be able to compete more fairly for supplies with the interstate pipelines. In addition, Title IV the bill provides for flows of gas into, as well as out of, the intrastate market as economic conditions warrant, without subjecting the intrastate pipelines to regulation under NGA. This title also will serve to provide the intrastate market with equal access to Outer Continental Shelf production, and production onshore in other States. Finally, the contract carriage provision will help facilitate these flows of gas between markets where such flows are economic. While estimates of the flows that will occur between markets under the bill are unavailable, the proposal is designed to eliminate and to prevent the reoccurrence of a dual market for natural gas.

Question 4: The question then is whether the mechanism contained in the Administration's bill will actually work to remove controls from a substantial amount of old, S. 104 gas. What assurances can you offer about this?

Answer: Any gas under contracts that are renegotiated after passage receives decontrolled prices--prices freely negotiated. Old gas that currently would be decontrolled under NGPA section 121(a) on January 1, 1985, will continue to be decontrolled on that date, subject to the gas cap price. The bill removes all price controls on January 1, 1986, for all first sales of gas not already decontrolled, thus the price of old gas will be determined by each individual contract after that date.

Minority Members
General Questions

Question 5:	Everyone agrees that we have a surplus of gas right now. However, no one is sure how long it will last. Based on recent trends in drilling and the rates at which existing fields are being depleted, some in the industry believe that the surplus may not last very long. Please provide the Committee with your estimates, from your analysis of February 28 or from any other source you prefer, comparing domestic gas supply under continuation of NGPA vs. the Administration's bill. Do this for the years between now and the end of the decade.
Answer:	Based on recent trends in developmental drilling, the Department of Energy, in its analysis released on February 28, 1983, estimated that there were approximately 1.4 trillion cubic feet of excess deliverability of gas in late 1982. This is a conservative estimate of the amount of excess gas; the size of the surplus may be as large as 2-3 trillion cubic feet. S. 615 provides the necessary incentives to produce these excess supplies of gas by allowing renegotiation of gas contracts, by reducing take-or-pay requirements that are currently forcing many pipelines to purchase more expensive gas, and by ensuring through FERC review of purchases that pipelines prudently purchase supplies. The Department believes that the full 1.4 tcf of shut-in surplus gas will enter the market in the first year after

enactment of S. 615, thereby displacing more expensive gas currently being produced. This will result in lower gas prices for consumers. If the NGPA continues unaltered, the Department believes that the natural gas industry will continue to experience an excess of supply-to-consumption for a number of years. How large the surplus may be in the future will be determined by many factors, such as the pace of economic growth and future oil prices. Using conservative assumptions, the Department believes that the amount of excess supplies will average between 700 and 1,000 billion cubic feet in 1983, and 300 and 700 billion cubic feet in 1984.

Minority Members
General Questions

Question 6:	I am interested in the number, but I am more interested in why you think the numbers come out the way they do in your analysis. Therefore I would like you to explain how the choice between continuation of the NGPA and adoption of the Administration's bill affects the important factors influencing domestic production of natural gas.
Answer:	Under cautious supply-response assumptions, the major effect of our bill on the domestic production of gas as opposed to the continuation of the NGPA is on the timing of the production of different categories of gas. Older, less expensive gas is produced first and the high-cost gas is produced later. This means that prices to consumers over the next several years will be lower under our proposal than under the NGPA. The current low-cost gas surplus is used first, causing gas prices to fall in the first year after passage as these supplies enter the market.

Although we have no study to support assumptions of additions to low-cost reserves, our experience with the oil market leads us to believe that such additions will take place under our proposal. When oil was decontrolled the actual production which occurred in 1982 exceeded the estimates of both OTA and GAO.

Minority Members
General Questions

Question 7:	Your February 28 analysis of the impact of the Administration's bill predicts that wellhead gas prices will actually fall by $0.40 per mcf under the bill as compared to continuation of the NGPA. Could you explain in detail how this result comes about? Is it assumed that the effect of renegotiation of low-priced old gas contracts is overwhelmed by other effects that tend to reduce wellhead gas prices? What are these other effects, and how do you assume that they operate?
Answer:	Our estimates of price effects are derived from the mathematical model of the natural gas market described in the February 28 analysis. This model analyzes the interactive effects of supply, of which there is a short-term excess, and demand, which is currently rather low, in order to predict price effects. Current supply and demand conditions, in a free market, should dictate that national prices will fall, and a drop in oil prices would increase that drop.

The 40 cents per mcf referred to is in Table 7 of the study (and is based on a 1983 oil price of $25 per barrel). Prices continue to rise under the NGPA by 10 cents per mcf because current evidence is that NGPA ceilings continue to act as floors. Under the analysis of the Administration's bill, it is assumed that very little old gas is renegotiated in the first year. A 30-cent-per-mcf price drop occurs under the proposal since the new contract gas prices, the gas cap, and the NGPA sections 102, 103, and 108 prices fall dramatically. Take-or-pay limitations also have a downward price effect.

Minority Members
General Questions

Question 8: How do the fundamental elements of the bill (passthrough limitation, take-or-pay limitation, market-out option, contract carrier authority, etc.) apply to entities in the intrastate natural gas market (that is, to intrastate pipeline distribution companies and their customers)?

a. In each case, what is the rationale for the treatment you adopted?

b. To what extent are the intrastate and interstate markets treated differently by the bill?

c. What assurances are there that the bill won't tend to foster recreation of the dual gas market the NGPA was designed to unify?

Answer: a. Except for two provisions, S. 615 treats the interstate market and the intrastate markets the same. Similar treatment is provided because S. 615 seeks to create a free market in every natural gas market, but not to preempt the authority of States to regulate intrastate pipelines.

b. The passthrough limitation (section 101) and the contract carriage authority (section 403) apply only to interstate pipelines. These provisions were limited because State commissions are the appropriate agencies to regulate intrastate pipeline rates and to impose mandatory transportation obligations on intrastate pipelines. While it is argued the exclusion of intrastate pipelines from the passthrough limitation could foster a dual market, we don't agree it will. The creation of a dual market in the past was the result of the expectation that Federal price regulation of the interstate market would continue permanently, thus making the intrastate markets more attractive for gas sales. This is not the case with the passthrough limitation, which will terminate after 1985. Since non-price regulation ends at the end of 1984, and all price regulation by the end of 1985, every vestige of wellhead regulation will shortly be gone. Thus, there can be no expectation of advantage in the intrastate market, and a dual market will not be created.

c. Although it is possible that a dual market could be created in the time period between passage and January 1, 1986, it is highly unlikely that this would happen. In order for a dual market to develop, several conditions must be met. First, the current surplus of gas would have to be depleted. Right now few pipelines are competing for new gas supplies. Second, prices for competing fuels would have to increase such that natural gas would be competitive at higher prices. This is especially true because in the major intrastate markets, the pipelines that presumably would be bidding gas away from interstate pipelines already pay, on the average, more for gas than the interstate pipelines, and a larger proportion of their customers have fuel switching capabilities which make them much more responsive to changes in the price of gas. Finally, for the intrastate pipelines to successfully bid away gas from the interstate pipelines means that FERC is not allowing purchased gas cost passthroughs.

Question 9: What public interest is served by raising the price of all old, flowing natural gas?

Answer: The public interest is not served by continuing to control the price of natural gas. Currently natural gas pipelines purchase gas that is priced at varying levels, and later sell that gas at an average price. As a consequence, under the NGPA, pipelines can afford to purchase new gas supplies at very high prices and still be able to sell that gas to consumers. This results in two detrimental effects. First, consumers do not receive the benefits from price controls on old gas. The main beneficiaries of the controls on old gas are the producers of high-cost gas; without the existence of price controls on old gas pipelines would not be able to pay the high prices currently demanded for deregulated gas. Second, the Nation's economic health is affected. Valuable national resources should be spend in the most cost-effective manner possible. Natural gas that is the least expensive to produce should be produced first. Gas that is more costly to produce should only be produced when the price it receives in the market justifies that expenditure. The perpetuation of price controls, together with the practice of averaging the cost of different types of gas, causes high-cost gas to be subsidized by lower cost gas, thereby encouraging its premature use.

S. 615 will improve the national welfare by increasing the incentives to develop the least costly gas first. It will accomplish this by allowing all existing contracts to be renegotiated and by allowing the negotiating parties, who are knowledgable of the forces of the marketplace, to determine the prices and terms of future gas contracts. Allowing the forces of competition to ultimately determine the prices paid for gas will prevent the distortions that have been occurring recently under the NGPA from occurring again.

Question 10: What will be the long-term supply response if we deregulate old gas? Without the roll-in capacity of old gas, will we be able to afford to explore and develop some of the more promising areas which are particularly expensive to develop?

Answer: Removal of price controls on old gas will encourage the more intensive development of old, lower cost gas fields and provide producers with the incentive to produce the maximum quantities of gas from these reserves. We believe that this will ultimately increase the total amount of gas available for recovery from these reserves.

Elimination of the roll-in capacity of old gas will ensure that the more expensive kinds of production are developed as economic conditions warrant; that is, they will be developed when the price received in the market justifies the expenditure required to develop that source of supply. Under the proposal, high-cost categories of production will not be encouraged so long as there is lower cost gas available that will meet our supply requirements.

Question 11: How will natural gas utilities--both pipelines and local distribution companies--be able to meet their utility obligation to serve the public if the contracts underpinning their basic source of supply cannot be relied upon due to the operation of the market-out provision?

Answer: Gas utilities will meet their obligations to serve the public by purchasing the necessary quantities of gas in a competitive market in the same manner that electric utilities purchase the energy resources necessary to ensure their continued service to the public. The market-out option simply means that if either the gas producer or purchaser is dissatisfied with the terms of an existing contract and renegotiation has been unsuccessful, then either is free to seek better terms elsewhere.

Question 12: Why do you believe that the marketplace principles behind many of the provisions in your bill have any place in the public utility business?

Answer: We should deregulate those sectors of any industry in which the potential for greater competition exists in order to achieve the economic advantages of the marketplace.

In the wellhead market there are over 12,000 producers competing to sell gas. Elimination of all gas price controls at the wellhead will allow full competition among these producers and offer public utilities the opportunity to obtain adequate supplies at the lowest possible cost--something which is not happening in today's market. The provisions of the proposal ensure pipelines have both the proper incentives and the opportunity to take advantage of this free wellhead market. The fact that S. 615 maintains some regulatory oversight over pipelines and distribution companies is not a justification for continued controls over what is a highly competitive wellhead market.

For example, regulated electric utilities make purchases of deregulated coal supplies. Regulation to prevent monopolistic pricing in end-use markets while purchasing from competitive supply markets are compatible concepts.

Minority Members
Sec. 101

Question 1:	As drafted, the limitation on the passthrough of certain purchased gas costs applies only to interstate pipelines. a. Is that your intent? b. If so, why?
Answer:	The passthrough limitation is intended to, and does, apply only to interstate pipelines. The limitation was not extended to intrastate pipelines because regulation of their rates is a matter of local concern for which State commissions are the appropriate regulatory body. State commissions would be free to adopt a passthrough limitation for intrastate pipelines similar to that in S. 615. Moreover, intrastate pipelines generally do not have "cushions" of low-priced, old gas. They would not be able to bid up the price, and "take away" interstate gas without jeopardizing their own market. This is particularly true where there is vigorous price competition for alternative fuels--the situation that movement to a free market would ensure.

Minority Members
Sec. 101

Question 2: What consumer protection features are there for customers of intrastate pipelines?

Answer: The best consumer protection to assure low prices for intrastate customers is the marketplace. Like customers in the interstate market, customers in intrastate markets will benefit from letting prices in new and renegotiated contracts respond to the current downward price pressure and by limiting regulated prices to the lower of the NGPA ceiling price or the gas cap price. Intrastate customers also will benefit from the take-or-pay option, which will remove the contractual impetus for pipelines to take expensive gas before cheaper gas, and from the market-out provision, which will allow pipelines to terminate expensive contracts in order to buy cheaper gas. Finally, intrastate customers will be protected by the increased ability of intrastate pipelines and local distribution companies to obtain access to, and hence compete for, gas outside their own State (including gas on the outer Continental Shelf).

Minority Members
Sec. 101

Question 3: If the economic recovery we all hope for takes place, demand for natural gas should pick up considerably. Shortages could recur. Won't this provision allow intrastate pipelines to have an advantage in bidding for supplies over interstate pipelines?

Question 4: Won't this lead to a recurrence of a dual market again, something we have sought to overcome for years?

Answer: Though demand for natural gas will definitely increase as the economy recovers, the Administration's bill makes it highly unlikely that shortages will recur. Currently there is a surplus of 1.4 tcf due to market regulation under NGPA, and it is unlikely that demand will increase this much due to economic recovery. Further, in an unregulated market, changes in price will ensure that supply and demand remain in balance. Under the proposed policy, FERC will be able to allow rate increases above the "allowed rates," should they be warranted, based on the reasonableness of the price and the need of the pipeline to acquire gas in order to provide adequate service to its customers. Thus, should demand for gas greatly exceed our expectations, the market will be flexible enough to remain in balance. In addition, some sectors have permanently reduced per-unit natural gas demand.

Conservation measures such as increased insulation in houses and more efficient gas-using equipment in businesses and homes mean that individual demand may never be as high as it was previously. Those sectors that may greatly increase demand as a result of increased economic activity are also more likely to have fuel switching capabilities than before. So, should shortage pressures reappear, the economy is better suited to adapt and avoid the problem.

The dual market of the past was the accumulated result of years of excessive regulation. The dual market will not arise during this short transition to a decontrolled market in which there are no government-created advantages or disadvantages in acquiring supplies.

Minority Members
Sec. 101

Question 5:	What part of increases in natural gas prices paid by residential consumers in the last 3-5 years has been due to increases in purchase gas costs (PGA's)?
Answer:	In the preceeding 5 years (1978 to 1982), increases in domestic wellhead prices have accounted for about half of residential price increases.

Question 6: What part of increases has been due to factors other than purchase gas costs which are ordinarily included in general rate filings?

a. Your consumer protection provision does not apply to parts of consumer costs other than PGA's. Is that your intent?

b. Your consumer protection provision does not prohibit a pipeline from including increases in purchased gas costs which exceed the limitation in a general rate filing. Is that your intent?

Answer: a. The passthrough moratorium will not affect all increases to a pipeline's rate; it will affect only increases in the purchased gas cost component of the rate that exceed the pipeline's "allowed rate" for purchased gas costs. A pipeline's "allowed rate" will be the average price per million Btu's that the pipeline paid for gas delivered to it during the month preceding the enactment of this bill plus an "adjustment amount" to reflect inflation. The "adjustment amount" will be the same for each pipeline. It is calculated by multiplying the national average pipeline wellhead cost by the GNP price deflator and allowing this amount to be added to each pipeline. On a national average, these costs represent about half the increases felt by residential consumers over the last 5 years.*

b. A pipeline could seek to recover increased purchased gas costs in a general rate filing; however, these particular costs could only be recovered after the Commission made an affirmative determination that the costs were just, reasonable, and prudently incurred. These increased costs could not go into effect, subject to refund, before this determination was made, even if the pipeline sought to recover these costs in a general rate case.

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*Data from Monthly Energy Review, February 1983.

Minority Members
Sec. 101

Question 7: If a portion of a PGA is disallowed by the FERC, is it your intent that the pipeline would still have to pay the producer the full purchase price, or should the disallowed portion be backed out all the way to the producer?

Answer: It is intended that the treatment of disallowed costs would depend on any existing contractual arrangements between the parties.

Minority Members
Sec. 101

Question 8: If, after review, the pipeline's full PGA is ultimately granted, would the pipeline get to recover the full cost of financing (including interest cost) which it incurred while awaiting a FERC decision?

Answer: It is intended that the treatment of financing costs be determined by the Commission as it does with other costs of doing business.

Question 9: Your bill requires the Commission to "allow recovery (of the full PGA) if it determines that the costs sought to be recovered were just, reasonable, and prudently incurred." Under the existing law, a pipeline's purchases are presumed to be prudent; the person challenging those purchases has the burden of proof. Do you intend to change that burden?

Answer: S. 615 would permit the recovery of increased purchased gas costs only to the extent that the Commission makes an affirmative determination that the costs were just, reasonable, and prudently incurred, and only after the Commission makes this determination. With respect to the burden of proof, the allowed portion of the purchased gas cost passthrough would be treated the same as it is currently; thus there would be no change in burden of proof. For the recovery of the increases covered in subsection (b), the burden would be on the pipeline to make its case concerning the non-availability of cheaper gas, the needs of its existing customers, and other factors, before the Commission could make an affirmative determination.

Minority Members
Sec. 101

Question 10:	The Commission has seldom interfered with good faith business judgments made by pipelines in rendering service to their customers. Do you intend this kind of deference to good faith business judgment in the "prudently incurred" test?
Answer:	The Commission would be required to make an affirmative determination that the increased purchased gas costs were just, reasonable, and prudently incurred. While the Commission certainly would give some deference to a pipeline's business judgment, the requirement of an affirmative determination suggests a stronger showing by the pipeline than under present law.

Minority Members
Sec. 101

Question 11: Your bill requires the Commission, in making the determination of whether costs were prudently incurred, to "consider the reasonable availability of lower cost supplies to the pipeline and the necessity of such costs for the pipeline to render adequate service to its existing customers."

a. What factors would the Commission have to consider?

b. Would it have to consider how much natural gas is available today for purchase? At what price? In producing areas served by what pipelines?

c. How will the Commission know what supplies were available?

Answer: a. Factors more specific than those quoted could be developed by the Commission when it established procedures for the proceedings to recover increased purchased gas costs and during the course of those proceedings. The Commission could establish general criteria and pipeline-specific criteria as well. The physical depletion of old gas would be one factor the Commission would certainly consider.

b. These are among the factors the Commission would consider.

c. FERC can use data from whatever sources it chooses. The pipeline seeking to recover the increased purchased gas costs and any party opposing the recovery would be expected to provide this kind of information in addition to whatever information the Commission might generate in the course of a proceeding on an application.

Minority Members
Sec. 101

Question 12: How do you intend the "adequate service" standard to relate to the current case law interpretation of "adequate service" under section 7(a) of the Natural Gas Act?

a. For example, would "adequate service" include industrial curtailments in extremely cold weather?

b. Would it include the pipeline's ability to meet not only the present but the reasonably foreseeable requirements of the pipeline's existing customers?

Answer: The Commission would be expected to use its past section 7(a) experience, including its case law interpretation of the concept of "adequate service," in making determinations concerning the recovery of increased purchased gas costs. It is intended that, in applying previously interpreted concepts, the Commission will reexamine those interpretations in the context of the new proceeding and in the light of its intended purpose. It is our intent that "adequate service" includes meeting both the present requirements of existing customers and the reasonably foreseeable requirements of these customers.

Minority Members
Sec. 101

Question 13: Your bill requires the Commission to make "expeditious decisions" on PGA applications. What do you mean by "expeditious"? Six weeks? Six months? What will happen if there is no decision within say a year?

Answer: There would be no typical time period for an "expeditious decision." It is intended that the Commission process these cases on a priority basis, with the goal of acting more quickly than general rate cases and PGA cases.

No passthrough could occur until there was an affirmative FERC determination to allow all (or part) of the passthrough.

Minority Members
Sec. 101

Question 14: Can you give a real life example, based upon recent PGA filings, of how your PGA mechanism would work? If it had been enacted, how would it have affected consumers in my home state this winter? How would it work next winter? Do you have any data to support your projections?

Answer: Initially, each interstate pipeline will be required to file with FERC its actual purchased gas costs (from all sources) in the month prior to enactment. An inflation factor based on the GNP price deflator will be assessed to estimate the level of purchased gas cost that may be passed through immediately, pursuant to existing FERC procedures. Increased purchased gas costs above the base plus inflation may be recovered by the pipeline, upon application, but only after FERC approves them as "just, reasonable, and prudently incurred." These increased costs may not be collected from consumers subject to refund.

Our mechanism would work as follows. After enactment, each interstate pipeline would compute and file with FERC its actual purchased gas cost for the month immediately prior to enactment.

Assume for Pipeline A that this cost is $3.00. Then assume that, in a particular month following enactment, the pipeline exceeds this $3.00 base (after an inflation add-on) by $0.25. The pipeline recovers the adjusted base amount ($3.00 plus inflation) just as it would now under the existing FERC PGA mechanism. The increment of $0.25 could possibly be recovered by the pipeline pursuant to the procedures set out in the bill. The main feature of this procedure is that, unlike the current PGA mechanism, the increased cost may not be collected immediately from the consumer. It may be collected only after the FERC finds the increased costs were "just, reasonable, and prudently incurred."

Question 15:	Please explain how your affiliated production provision works. What do you intend by limiting passthrough for purchases from affiliates "to the extent such production or purchases were not reduced to a percentage of deliverability no higher than the percentage of deliverability to which the pipeline had exercised contemporaneously a contractual right to reduce its takes of less expensive gas"?
Answer:	The affiliated production provision is intended to prevent an interstate pipeline from taking its own production or that of an affiliate at a rate greater than it takes cheaper gas from any other source. To the extent the pipeline takes its own, more expensive gas at a higher rate, the pipeline may not recover the cost of this gas. This provision is intended to look at a pipeline's actions over a period of time so that a short-term fluctuation over which the pipeline had little or no control would not trigger the operation of the provision.

Minority Members
Sec. 101

Question 16: If a pipeline is taking only 50 percent of an Appalachian producer's production, for example, does that mean it would not be able to pass through costs of purchases at a rate exceeding 50 percent for its own production?

Answer: Assuming the pipeline's own production is more expensive than the other producer's gas, the pipeline would not be able to pass through the costs of its own, more expensive production to the extent that it takes its own production at a percentage rate in excess of the 50-percent figure used in the question and that the 50% take (from the Appalachian producer) was achieved because the pipeline exercised a contractual right to reduce its take to that level.

Minority Members
Sec. 101

Question 17:	You said on the MacNeil-Lehrer program that this bill requires pipelines to purchase the least expensive gas first. a. Is this the provision you were referring to? b. How precisely does it require a least-cost purchasing strategy?
Answer:	There are two major provisions in the bill that will ensure that pipelines purchase the least expensive gas. First, pipelines may reduce their take-or-pay obligation to 70 percent and thereby eliminate the requirement to purchase high-cost supplies when low-cost supplies are readily available. Second, elimination of the immediate passthrough of increased purchased gas costs will induce pipelines to purchase the lowest cost gas first. This provision requires that increased purchased gas costs could not be put into effect subject to refund. Rather, FERC must first find the increase to be just, reasonable, and prudently incurred. FERC would be required by statute to consider the availability of lower priced gas in a proceeding involving increased purchased gas costs.

Minority Members
Sec. 101

Question 18: Would subsection (b) confer any independent authority for a pipeline to raise its rates unilaterally (without contractual agreement with the seller) upon Commission approval of an additional purchased gas cost? That is, could a pipeline seek FERC approval of an additional purchased gas cost *before* it had reached contractural agreement with the seller supplying gas to that pipeline? If so, would the FERC's approval bind the supplier?

Answer: No. The passthrough limitation focuses on rate increases to consumers, not on the prices paid in individual contracts.

Minority Members
Sec. 101

Question 19: Your bill would not allow a pipeline to automatically pass through any costs which exceed its pre-enactment level adjusted for inflation.

a. Does this not serve to punish pipelines who were prudent or fortunate enough to secure large percentages of old, low-cost gas?

b. Does this not work to perpetuate the distinction between low-cost pipelines and other pipelines?

c. Your inflation adjustment uses a national average pipeline cost. Why didn't you use a national average pipeline cost in the passthrough limitation?

d. Would not allowing pipelines to pass through the higher of system average cost or national average cost adjusted for inflation dissolve the distinction between pipelines and allow low-cost pipelines some room to expand?

e. Since high-cost pipelines would presumably begin negotiating prices down, would not this avoid sharp increases in the national average price?

f. Is there anything inherently unfair about allowing a pipeline to charge its customers the national average cost for a commodity?

Answer: a. To the extent that some acquisition prices rise for certain individual pipelines as old gas contracts are renegotiated or terminated through market-outs, this will tend to put upward pressure on those pipelines' average acquisition costs. There are, however, several factors that will work in favor of these pipelines at the same time. First, downward price pressure in new and high-cost gas as well as falling oil prices will help mitigate the upward price pressure for high-cushion pipelines and establish a market-clearing limit on how high those costs will be. Additionally, the use of a national average for the inflation factor will aid those pipelines whose costs are below the national average rate. Finally, in evaluating applications for higher passthroughs, FERC will consider the physical depletion of old reserves as a relevant factor in whether to approve each request.

b. The proposal is designed to eliminate bidding disparities between pipelines by eliminating the distinction between old and new gas as new purchase agreements are concluded. Before this transition is complete, individual high-cushion pipelines may have to work harder than other pipelines in keeping their costs at a minimum. This serves to protect consumers from large price increases during the transition period. After 1985, all pipelines will have an equal ability to bid for supplies in the market.

c. Passthroughs of purchased gas costs should be a pipeline-specific, cost-based adjustment of gas rates. The application of a national average would arbitrarily and massively disadvantage those pipelines that happened to fall on the high side of this average. It also gives high-cushion pipelines little incentive to keep costs below this national average. Until the cushion is completely eliminated, there will be no absolutely fair way to make a transition in which none of the pipelines loses because of a cushion position. Helping the low-cost, high-cushion pipelines means hurting the others.

d. Yes it would, but at the expense of the consumer, who would bear the costs of this expansion. Also, national PGA limitations give high-cushion pipelines little incentive to keep their costs below this arbitrary figure. All pipelines are being helped by the contractual remedies provided in this bill. We cannot ensure that the benefits of this bill are distributed with exact equality. However, the short-term adjustments in past regulatory entitlements are a small price to pay for the end-objective of a rational gas market.

e. To achieve a free field market for natural gas supplies, all pipelines will ultimately have to pay the market price. The Administration's proposal is designed to provide all pipelines with incentives to minimize their acquisition costs until the cushion is completely eliminated and the free market pricing mechanism is in place. A national average price limitation on passthroughs does not instill sufficient discipline in either low- or high-cost pipelines to keep their costs as low as possible, regardless of the level of the national average at any point in time.

f. The current national average cost for wellhead gas is the result of various distortions (take-or-pay clauses, NGPA ceiling and area rate clauses, high-cost gas bidding based upon the cushion) in the market for that commodity. Once we achieve full decontrol and rid ourselves of certain current contractual impediments, the market will determine prices by balancing supply and demand.

Question 20: Under your bill, a pipeline which incurred costs greater than its pre-enactment level plus inflation would have to apply to FERC to recover the excess. Significantly, you would not allow the pipeline to collect the difference subject to refund.

a. How do you expect a pipeline to pay what it cannot collect?

b. Assuming a pipeline ultimately received permission to recover this amount, how would the time value of money be treated?

c. Could a pipeline recover this amount? If so, how?

d. If yes, would not that lead to higher prices?

e. If no, would not this deter a pipeline from renegotiation?

Answer: a. We don't. It is this element that will cause pipelines to bargain hard for the lowest price possible and to not exceed its PGA limitation. If it does exceed its PGA limitation, the pipeline would then request FERC for an approval of its increase.

b.-e. It is intended that the Commission would determine the treatment of financing costs. Among the factors that the Commission would have to balance in determining the proper treatment would be the price to consumers versus the effect on the pipeline. The consumer will not pay these financing costs prior to the Commission determination becoming final. We expect that, on balance, the consumer will benefit, and we do not see this as a barrier to renegotiation.

Minority Members
Sec. 101

Question 21: If there is not significant renegotiation prior to 1/1/85 would not there be a great incentive for the exercise of market-outs at that time?

Answer: While market conditions at the time will determine the extent of exercise of the market-out provision, we expect there to be a significant incentive to use that provision, if negotiation between existing parties to the contract fails. We expect the existence of the market-out right will be used as a bargaining tool in renegotiation. We also expect some contracts will be made between the same parties even after a market-out is exercised in a contract involving those parties.

Minority Members
Sec. 101

Question 22: If a pipeline knows this, is it not faced with the possibility of a loss of supply necessary to meet system demand?

Answer: A pipeline that is unable to reach an agreement with a producer prior to January 1, 1985, does face the possibility of losing supplies from that particular producer. The pipeline has the option to look for supplies elsewhere and, in effect, comparison shop. The producer also must find a buyer willing to buy the gas on a basis better than the terms the existing purchaser would offer, which may not be easy in a competitive market. Producers also have ongoing costs and an incentive to make a profit. The market will, therefore, put pressure on producers to sell at prevailing prices. If a pipeline is faced with losing supplies, the pipeline would be willing to offer a competitive market price to secure the supplies. This market price will secure the pipeline sufficient supplies, although not necessarily from its current suppliers.

Question 23: Fearing such a loss of supply, would not a pipeline then be likely to enter into a host of new contracts substantially above previous levels even though it may not be able to pass them through?

Answer: Whether or not a particular pipeline must enter into many contracts at prices substantially above previous levels depends on its situation relative to other pipelines and on the market situation at the time. Pipelines cannot ignore the marketplace; they will lose customers to alternative fuels if they overprice their gas. Also, producers cannot ignore the fact that they will lose sales to competitors if they insist on an above market price during a surplus situation. Most pipelines will not enter into contracts agreeing to pay substantially higher prices, because what makes an individual pipeline pay more is the likelihood that available supplies will be lost to other pipelines. Pipelines need not fear loss of supply during transition.

Minority Members
Sec. 101

Question 24:	Would not this precipitate the sort of price fly-up we have been seeking to avoid?
Answer:	No, because we believe the market currently is above average clearing prices, and we do not expect the price increases for old gas to be large enough balanced against price reductions from other categories to precipitate a price fly-up.

Minority Members
Sec. 101

Question 25: Would not the prospects of such a fly-up tempt the Congress to once again legislate on this issue--perhaps by extending or expanding controls?

Answer: We do not believe a fly-up will occur under our bill. That temptation clearly already exists under current law.

Minority Members
Sec. 101

Question 26: How would your bill treat passthrough of costs for pipeline-owned production?

Answer: The costs would be subject to both the limitation on the passthrough of increased purchased gas costs of proposed section 603(a)-(e) and the rateable purchase requirement of proposed section 603(f).

Minority Members
Sec. 101

Question 27: Is not the limit on a pipeline's affiliate production too broad? Does it not serve to punish pipelines who have not abused contracts with their affiliates?

Answer: The rateable purchase requirement is not too broad and does not punish any pipeline. It is intended simply to eliminate any potential for improper self-dealing by pipelines.

Minority Members
Sec. 101

Question 28: Can we and should we distinguish between the difference in the cost to a pipeline in serving industrial, commercial, and residential purchasers?

Answer: We believe this issue should be considered only after the deliberations on wellhead decontrol are complete. Our analysis indicates that elimination of regulations affecting natural gas production will provide large economic benefits to the participants in the gas market as well as the economy generally. Analysis of the effects of regulation in the transmission and distribution sectors of the gas market is continuing, but does not clearly support going beyond S. 615 at this time.

Question 29: The FERC has discussed the possibility of an "imputed load factor" for each pipeline. If a pipeline dropped below this level, its shareholders, not its customers, would bear the expense. What is your opinion of such a measure?

Answer: I believe that a corollary of the move to market-determined field prices for natural gas is that pipelines should have a clear economic incentive to purchase gas at a price that ensures its marketability. There may be a number of ways to establish such an incentive. The use of imputed load factors is one approach that deserves consideration.

Minority Members
Sec. 201

Question 1:	One of the prime objectives of your legislation is to create a free market in the natural gas industry. In response to a question from Senator Murkowski, you indicated preliminarily that you do not intend to touch the NGPA authority allowing States to establish their own lower ceiling prices. a. How does leaving State price control authority intact square with your objective of creating a free market? b. Would that not leave the potential for another inequity--price controls in some States, but not in others?
Answer:	The States traditionally have had the responsibility for overseeing their own intrastate market. Leaving intact State price control authority over intrastate gas would not interfere with the overall objective of creating a free market since interstate gas would be free of controls, and intrastate gas likely would also be free of controls. The presence of a free market for interstate gas would mean that a State could exercise its price control authority over intrastate gas only when local concerns absolutely compelled such controls. Since the imposition of local price controls would likely drive gas from the intrastate market into the interstate market, a State may be reluctant to do so.

Minority Members
Sec. 201

Question 2: The NGPA deregulates certain categories of natural gas on January 1, 1985. Would section 201 have the effect of extending price controls, via the gas cap mechanism, from January 1, 1985, through December 31, 1985?

Answer: S. 615 deregulates from the maximum lawful pricing provisions of the NGPA those categories of gas that are deregulated under NGPA section 121(a) as presently written. With respect to a contract for this type of gas in effect on enactment and not renegotiated after enactment, the gas cap price would apply in 1985. The gas cap price is not the same as NGPA price controls, since it reflects the free market price and not a governmentally imposed price. Any buyer or seller that chooses not to be subject to the gas cap price can market-out after January 1, 1985, and become subject to the free market, same as for gas deregulated under NGPA.

Minority Members
Sec. 202

Question 1: In order to obtain a certificate of public convenience and necessity under the Natural Gas Act, a pipeline must show that it has sufficient natural gas reserves dedicated to it to make the project economic and reliable. Section 202 removes the certification and abandonment authorities for deregulated natural gas. How will a pipeline be able to show it has sufficient reserves for a certificate if it no longer has dedicated reserves?

Answer: The change to a free market for wellhead sales of natural gas will require the Commission to reconsider, and perhaps revise, some of the ways in which it carries out its responsibilities under the Natural Gas Act. There is no requirement under the Natural Gas Act concerning the dedication of natural gas reserves. The Commission adopted this test because it provided a convenient reading of a pipeline's ability to serve the public interest in a regulated market. The Commission can develop, if necessary, tests that indicate a pipeline's ability to serve the public interest in a free market.

Minority Members
Sec. 202

Question 2:	What would happen to pipeline certificates for existing pipelines if the reserves dedicated to that pipeline are no longer there?
Answer:	Nothing need happen. The Commission could review certificates in light of the legislative changes, and could make whatever changes are appropriate to reflect the new, free market for gas purchases in the field, and the more open access to gas supplies.

Minority Members
Sec. 203

Question 1:	What projections do you have for what the gas cap price will be?
Answer:	The future level of the gas cap is, of course, dependent upon many factors, including the state of the economy and the price of oil. If world oil prices decline slowly from today's levels, until 1985, and thereafter increase at 1 percent, the Department projects the gas cap will rise from $2.93 per mcf in 1983 up to $3.60 per mcf in 1986. Prior to 1985, the cap would be slightly above average market-clearing levels as the old gas cushion slowly dissipates. For 1985 and 1986, the cap will be at projected market-clearing levels.

Minority Members
Sec. 203

Question 2:	Have you asked EIA to take a look at recent contracts, and to project what the gas cap price will look like? If so, please provide their analysis. If not, would you please do so?
Answer:	A survey of recent deregulated gas contract prices would be useful in predicting the cap level but is not necessary. EIA, as yet, does not have ready access to these contracts.

Of course, EIA will be very active in actually calculating the gas cap. EIA has not actually done their own modeling projections; however, both EIA and GAO have been briefed on the assumptions underlying the February 28 study. We expect that these questions will be assessed by EIA.

Minority Members
Sec. 203

Question 3: How would the mechanics of the gas cap price application work? If the cap is lower than the section 103 price, but higher than the section 104 price, what price will the producer get?

Answer: A producer of section 103 gas would receive the gas cap price, while a producer of section 104 gas would receive the NGPA ceiling price for section 104 gas.

Minority Members
Sec. 203

Question 4: How would it work with respect to a section for which there are numerous maximum lawful prices?

Answer: Under section 101(b)(5) of the NGPA, the producer receives the highest of the numerous maximum lawful prices. S. 615 would not affect this provision. Accordingly, under S. 615, the producer would receive the lower of the gas cap price or the highest otherwise applicable NGPA maximum lawful price.

Minority Members
Sec. 203

Question 5: Have you, or OMB, or FERC done any estimates of the personnel EIA and FERC would need to administer the passthrough mechanism and the gas cap price mechanism? If so, please provide the analysis. If not, when would you expect to have such an analysis?

Answer: In preparing S. 615, we considered the potential administrative impact on FERC, and other parts of DOE, of the entire bill. Some parts of the bill, like the purchased gas cost provision, probably would involve increased administrative efforts. Other provisions, like the repeal of incremental pricing and Fuel Use Act provisions, would involve decreased administrative efforts. We are in the process of completing a more detailed assessment, but we are relatively sure that current funding levels are sufficient even if some new procedures require additional administrative effort.

Minority Members
Sec. 203

Question 6: What penalties are there for failure to comply with the filing requirement in section 301?

Answer: Failure to comply with the filing requirements would be a violation of a provision of the NGPA and thus subject the non-reporting purchaser to the civil and criminal penalties of section 504 of the NGPA.

Minority Members
Sec. 203

Question 7: Your bill would limit non-renegotiated contract prices to the lower of NGPA levels or the average of new and renegotiated contracts.

a. Why do we need a gas cap? Why not just NGPA levels?

b. Why should the cap include renegotiated contract prices?

c. Would not very low and very high contract prices be gradually phased up to reflect market levels?

d. Would not such a phasing up process unnecessarily distort the gas cap, at least initially?

e. Since 40 to 50 percent of current gas supplies are old, low-cost gas, would not this distortion be on the downward side?

f. Is not the result of this a legislative rollback of unrenegotiated contract prices?

g. Would not such a rollback decrease the desire of purchasers to renegotiate, leading to substantial market-outs on 1/1/85?

Answer: a. Currently, NGPA ceilings for Section 102 are well above market clearing levels. The gas cap will push these ceilings down to levels more consistent with present market conditions. The gas cap provides an immediate transition to market pricing. The gas cap will prevent contractual provisions that are tied to NGPA price ceilings and indefinite price escalators from causing unwarranted price increases. We do not believe that, in general, producers should be allowed to charge more as a result of a regulated environment than they would receive in a free, competitive market.

b. Renegotiated contracts, just like new contracts, are transactions made in a free market that represent the true value of gas to consumers and the costs that producers should reasonably incur to provide gas.

c. Although renegotiation patterns cannot be predicted with certainty, it is plausible that some existing contracts for high- and low-cost gas will be renegotiated to phase either up to or down to market levels.

d. We estimate that the gas cap will be somewhat above the market-clearing price until all old gas contracts are renegotiated to market levels and the cushion of old gas is eliminated. The gas cap will offset the distortions caused by NGPA ceiling prices and ensure a stable transition to decontrol.

e. The effect of renegotiating low-cost gas prices to market levels will gradually drive the gas cap down to market price. This adjustment does not create a distortion, but instead corrects the distortion of high-gas prices caused by the NGPA.

f. The gas cap will certainly lower the prices that some categories of gas can legally obtain. However, the cap is designed to allow gas supplies to receive prices that approximate their true economic value. The gas cap is unique because it does not require that the Government have perfect knowledge about the future economic value of natural gas. This shortcoming of past and current laws has proved costly to consumers.

g. We believe that the gas cap will encourage the parties to renegotiate rather than the opposite, since through renegotiation the parties will no longer be subject to the restraints of the cap and can freely determine the price of their gas.

Minority Members
Sec. 203

Question 8: How would the maximum lawful price in your gas cap treat production-related costs and severance taxes?

Answer: These costs and taxes would be treated the same as they are for the existing NGPA maximum lawful prices. It is intended that, in reporting contract prices for the purpose of calculating the gas cap price, the reporting purchaser would not include any production-related costs or severance taxes reflected in the contract price.

Minority Members
Sec. 302

Question 1:	Do you intend for the imposition of take-or-pay to apply equally to interstate and intrastate pipelines, or only to interstate pipelines?
Answer:	The take-or-pay reduction option is intended to apply both to interstate and intrastate pipelines.

Minority Members
Sec. 302

Question 2: Under what authority is the Federal Government able to regulate the contracting practices of intrastate pipelines, as section 302 appears to do?

Answer: As explained in detail in the memorandum of law on this subject made part of the record on March 9, 1983 (see particularly pp. 18-20), the Commerce Clause of the Constitution gives the U.S. Congress the power to regulate the contracting practices of intrastate pipelines. Indeed, the NGPA regulated intrastate wellhead sales and other provisions of intrastate contracts of gas and, in *Oklahoma* v. *FERC*, 494 F. Supp. 636 (W.D. Okla. 1980), *aff'd* 661 F.2d 832 (10th Cir. 1981), *cert*. *den*. 702 S.C. 2902 (1982), the reach of the Commerce Clause over these contracts was upheld.

Minority Members
Sec. 302

Question 3: Does a pipeline actually have to be unable to market its present supply of gas in order to be able to invoke the authority in section 302?

Answer: There are no substantive conditions, such as the unmarketability of the gas at the existing contract price, which must be present in order for a pipeline to exercise the market-out provision of S. 615.

Minority Members
Sec. 302

Question 4:	Does section 302 apply to natural gas imports? Should it?
Answer:	No. Imports were not included because dealing with them in S. 615 would have been a unilateral approach to a problem involving international relations with sovereign countries. Once our market is ordered and freed from artificial price restraints, the price for imported gas will have to reflect U.S. market realities if imported gas is to compete in the marketplace. There will no longer be a cushion of low-cost gas available to subsidize high-priced imports. If market conditions remain what they are today, the price for imported gas (and other high-cost gas supplies) will be under substantial pressure to meet the market under S. 615.

Question 5: Section 302 appears to be a private contract right, but the Commission has discretionary authority to come in if it is necessary to "prevent drainage and protect the correlative rights of the person producing the natural gas involved."

a. How would the Commission get involved?

b. Would someone have to file something with the Commission?

c. What would the party have to show in order to make its case?

d. Would the State commissions have any involvement in such a proceeding?

Answer: The Commission would have the discretion to address this situation in a general rulemaking or on a case-by-case basis. It is intended that the Commission would develop rules to facilitate decisions on this exception. These rules would state who must file and what showing must be made. A role for State commissions in this process would be appropriate because of their familiarity with regulation of conservation practices in gas fields. Of course, these commissions can participate in all FERC proceedings as a matter of right.

Minority Members
Sec. 302

Question 6: What would happen in producing States with rateable take statutes (Texas, New Mexico, Colorado, Oklahoma, and Kansas) if a purchaser were to invoke this new authority?

Answer: In the event of an unresolvable conflict, the Federal law would govern. It should be noted this provision extends to, but not past, December 31, 1985.

Minority Members
Sec. 302

Question 7: How many pipeline-producer contracts are there?

a. How many of these involve take-or-pay contracts?

b. Of the contracts with take-or-pay contracts, how many are for greater than 70 percent?

c. Of those with greater than 70 percent take-or-pay, how many contracts do not have market-out clauses?

d. Of all contracts, how many have indefinite price escalator clauses?

e. What volumes are covered by each of the different categories above?

Answer: EIA estimates that there are more than 60,000 producer-purchaser contracts. Most, but especially recent, contracts have take-or-pay provisions. Approximately 78 percent of all current gas under contract is subject to indefinite escalator clauses. EIA is currently working on a study that will address the remainder of these questions. The study is scheduled for June 1983.

Minority Members
Sec. 303

Question 1: This bill would allow the exercise of a market-out option of a contract which has been renegotiated as recently as the day before enactment. Would this not serve to inhibit renegotiation of contracts prior to enactment?

Answer: As the bill comes closer to enactment, we would expect that the parties would take into account in their renegotiation the new conditions that will exist after enactment. Even now parties could contract in such a way so as to compel reinstitution of their contract after enactment of the bill, but before the market-out option becomes available, thereby making the contract no longer subject to the market-out option. Because the market-out date would not occur for a period of time significantly after the date of enactment, we would not expect there to be much inhibition from renegotiation.

Minority Members
Sec. 303

Question 2: Why did you not include within your bill protection from suit for those parties who renegotiate pursuant to the bill's design? Would you support such a provision?

Answer: S. 615 would create strong incentives to renegotiate. In such an atmosphere, it would not be likely that contractual terms would be read to prevent parties from renegotiating. If parties feel the possibility of litigation would hinder the renegotiation process, this issue should be developed during the discussion on S. 615. We would give careful consideration to any provision designed to facilitate renegotiation.

Minority Members
Sec. 303

Question 3: Your statement says on page 7 that, "As an incentive to renegotiation, either party will be allowed, beginning January 1, 1985, to opt out of any pre-enactment contract." That may be your intent, but the bill is not drafted that way as was discussed briefly at the hearing. Section 303 applies only to "either party to a contract for the first sale of natural gas."

a. Do you agree as a technical matter that under the NGPA as interpreted by the Commission and by the courts, first sales are sales for resale and do not include sales directly to an end user?

b. Do you agree as a technical matter that the market-out provision in S. 615 applies only to "either party to a contract for the first sale of natural gas" and thus direct sales would not be subject to the market-out provision?

c. What percentage of natural gas flowing in the United States would be subject to this provision?

d. Do you intend the market-out provision to apply to direct or other unregulated sales between producers and electric utilities? If not, why not?

e. Do you intend it to apply to direct or other unregulated sales between producers and industrial customers? If not, why not?

f. Would it apply to sales by producers of their reservations of offshore gas?

g. Would it apply to sales, or other transfer for value, between pipelines and their affiliates or subsidiaries? If not, why not?

Answer: a. No. Section 2(21)(A) of the NGPA clearly provides that a "first sale" can be either a sale for resale or a direct sale.

b. No. The market-out provision would apply to a direct sale if the sale was a first sale within the meaning of section 2(21)(A).

c. It would apply to all flowing gas.

d. Yes. The market-out provision is intended to apply to any first sale by a producer to an electric utility.

e. Yes. The market-out provision is intended to apply to any first sale by a producer to an industrial customer.

f. Yes. A sale of a producer's reservation of offshore gas would be a first sale.

g. The market-out provision would apply to a sale, or other transfer for value, between a pipeline and an affiliate or a subsidiary to the extent the sale or transfer was a first sale. In most instances, such a sale or transfer would be a first sale. However, the extent to which the definition of first sale includes intracorporate transfers is currently before the Supreme Court. See, Mid-Louisiana Gas Co. v. Federal Energy Regulatory Commission, 664 F.2d 530 (5th Cir. 1981), cert. granted, 103 S. Ct. 49 (1982).

Minority Members
Sec. 303

Question 4: Please provide your best estimate of how much natural gas is not subject to first sale price regulation under Title I of the NGPA. Please estimate the price or prices at which such gas is sold. Please estimate the volume of flowing gas that is not a first sale under the NGPA, and provide a breakdown of the end uses for that gas.

Answer: Based on our legal analysis all gas is subject to first sale price regulation under Title I of the NGPA.

Minority Members
Sec. 303

Question 5: The feature article in January 1983, Natural Gas Monthly (an EIA publication) is entitled "Main Line Natural Gas Sales to Industrial Users, 1981." It discusses the extent of Federal price control regulation of main line sales. It states in part:

> "The regulatory authority and controls generally exercised over natural gas pipelines do not extend to Main Line sales. The price for Main Line sales is negotiated between buyer and seller and is not subject to direct regulation by the Federal Energy Regulatory Commission (FERC). . . . Since the sale is not for resale, the FERC regulates the transportation of the gas, rather than having jurisdiction over the price the pipeline charges the consumer."

a. Is it your intent, as you stated in your prepared testimony, that either party would be able to "opt out of any pre-enactment contract"?

b. Is it your intent that the market-out provision apply to main line sales to industrial users? If not, why not?

Answer: a. The market-out provision is intended to apply to any pre-enactment contract for the first sale of natural gas as that term is defined in the NGPA.

b. The term "main line sales" is not defined in the NGA, NGPA, or in FERC regulations. From the context of the EIA article, it appears these sales are sales from an interstate pipeline directly to an industrial end user. These direct sales are generally second sales. Some may be first sales. It is our intent to have the market-out provision apply to any first sale. Accordingly, if a "main line sale" is also a "first sale," the market-out would apply. If the main line sale is not a first sale, the market-out would not apply.

Minority Members
Sec. 303

Question 6:	Would a party invoking this provision have to give public notice, or file a certificate with the FERC that it had done so, so that others may be aware that the gas is available?
Answer:	No. However, it would be required to give notice to the other party to the contract. Presumably the seller would be interested in letting others know his gas may become available and would do this through a public medium.

Minority Members
Sec. 303

Question 7: Of all pipeline-producer contracts, how many do not have market-out clauses? What percentage of flowing gas is covered by contracts with market-out clauses?

Answer: Information by contract numbers is not readily available. More important in statistical terms are the percentage volumes subject to market-out clauses. EIA estimates that about 8 percent of currently flowing gas is under contracts with market-outs. These provisions are concentrated in contracts covering post-NGPA wells. Over half of the section 107 gas is covered by such provisions. These estimates are based on a survey of 1980 contract provisions. We know that market-out provisions are much more prevalent in recent contracts.

Minority Members
Sec. 401

Question 1:	Section 401 gives the Commission authority to authorize intrastate pipelines, and local distribution companies, to transport gas for others. What is the need for this provision?
Answer:	Section 401 of S. 615 expands the voluntary transportation arrangements of existing section 311 of the NGPA. This expansion is intended to promote the free flow of gas between the interstate and the intrastate markets and thus provide a check against a shortage or surplus developing in any market.

Minority Members
Sec. 401

Question 2:	Activities of intrastate pipelines and local distribution companies have traditionally been subject to State regulation. Why should the Federal Government get involved in these transactions?
Answer:	Sections 311 and 312 of the NGPA already affect intrastate pipelines and local distribution companies to the extent that these companies transport or sell gas in interstate commerce. They do not make these companies subject to the Commission's overall jurisdiction under the Natural Gas Act. S. 615 would not change these sections to regulate the intrastate market, but would make it easier for gas to flow in commerce and be available to all companies.

Minority Members
Sec. 401

Question 3: Section 401 also gives the Commission authority to authorize assignments of surplus gas by intrastate pipelines and local distribution companies. Again, why should the Federal Government get involved in the activities of these companies which have traditionally been subject to State regulation?

Answer: Existing section 312 of the NGPA allows assignments of surplus gas out of intrastate markets. Section 401 of S. 615 would revise section 312 to allow voluntary assignments of surplus gas into intrastate markets and thus facilitate the movement of gas in commerce.

Minority Members
Sec. 403

Question 1: The contract carrier authorization is designed to move gas between a producer and a purchaser, even if the interstate pipeline previously carrying the gas is no longer a party to that transaction. Is that correct?

Answer: Yes. The contract carriage provision is intended to make the natural gas market more competitive by making available a pipeline's unused capacity for the transportation of gas not owned by the pipeline. Unlike the transportation obligation in connection with the market-out provision, there would be no requirement under this provision that the pipeline had to have purchased the gas previously.

Question 2: Under this provision, what would happen if the following situation were to occur: pipeline A has some old gas. It is not able to reach an agreement with the producer and the contract is not renegotiated. It is terminated. The producer sells the gas to pipeline B. Pipeline A serves Chicago; pipeline B serves New England. How will this provision get the gas to New England?

Answer: It is not possible to answer this question without knowing how (or whether) the various companies involved are interconnected and whether intrastate transportation is involved at some point. It is up to the parties to make the appropriate arrangements and determine the method by which the gas will be transported. The contract carriage provision is independent of any exercise of the market-out provision. Contract carriage may be used independently of, or together with, the transportation right under the market-out. It may also be used (as may transportation under the market-out) in conjunction with NGA section 7 transportation and NGPA section 311(a) transportation, in any combination that would serve the desired purpose. We would assume that, before signing a contract to purchase gas, they would have determined the method by which it would be transported.

Minority Members
Sec. 403

Question 3:	Some observers worry about delivery problems developing in frontier gas production areas, such as the Overthrust Belt. New areas are not interwoven with a web of pipelines like the old producing regions are. This section does not require intrastate pipelines to act as contract carriers. Did you consider making them subject to the provision? Why did you not include them?
Answer:	The contract carriage provision was not extended to intrastate pipelines because, unlike the voluntary transportation arrangements under section 311(a), the Commission can order an unwilling pipeline to provide transportation under this provision. Indeed, the Commission is required to grant applications under this provision to the extent there is unused pipeline capacity and the use of that capacity would not affect a pipeline's ability to provide adequate service to its existing customers. We felt the inclusion of intrastate pipelines would be an unnecessary increase in Federal regulation. State commissions can, if they choose, make a similar provision applicable to intrastate pipelines, and we understand some have done so.

Minority Members
Sec. 403

Question 4:	What recourse does a purchaser outside the producing State have if the intrastate pipeline serving a remote field will not serve as a contract carrier?
Answer:	You are describing a situation where the only line connecting to a producer is an intrastate pipeline. State commissions are familiar with the problems of producers and intrastate pipelines and can develop rules to take care of situations such as the one described in the question. In fact, some State commissions already include contract carriage-type provisions in their regulation of intrastate pipelines.

Minority Members
Sec. 403

Question 5: Your bill hints at, but does not discuss, a relatively major reform of the pipeline industry through the allowance of significant amounts of direct purchases by end users from producers.

a. What percentage of future gas contracts do you anticipate will be direct sales?

b. How will direct purchasers be treated under existing curtailment priorities?

Answer: The contract carriage provision (section 403) should increase the competitiveness of the gas market. This provision requires pipeline transportation, and this is the new feature, since direct sales may now be made by producers only if there is a willing pipeline to transport the gas. We do expect direct sale gas contracts to be negotiated after passage but we do not have estimates as to what percentage of future gas contracts they would comprise.

In the event of curtailment on an interstate pipeline system, the pipeline would not be able to levy the supply of the direct purchaser.

Minority Members
Sec. 403

Question 6:	Will a pipeline have a residual utility responsibility to serve a direct purchaser if that purchaser's direct sale contract for some reason goes unfulfilled?
Answer:	No.

Minority Members
Sec. 403

Question 7:	The direct sale right is limited by available capacity in the pipeline. What happens if the pipeline later wishes to obligate to system demand that capacity which is occupied by direct sales?
Answer:	The Commission would have the right to condition any transportation under the contract carriage provision. The Commission could use this right to condition authorizations in ways that balanced the legitimate interests of the transporting pipeline and those of the parties seeking the authorization.

Minority Members
Sec. 403

Question 8: If a pipeline voluntarily adds capacity to accommodate both its growth in system demand and existing direct sales volumes, which customers would be responsible for paying the tariff for that increase?

Answer: The Commission would allocate the costs in an equitable manner.

Minority Members
Sec. 403

Question 9: If a pipeline purchaser chooses to invoke the market-out authority to abrogate a contract, and then to sell that volume of gas to an end user served by another pipeline system, how would the direct sale provision work?

Answer: A "pipeline purchaser" has no right under S. 615 to sell gas which, following exercise of its market-out right, it no longer owns.

Question 10: Would this not involve the capacity limitations of two pipelines?

Answer: A "pipeline purchaser" has no right under S. 615 to sell gas which, following exercise of its market-out right, it no longer owns.

Minority Members
Sec. 403

Question 11: As a transportation incentive your bill mentions "costs" plus $.05. Why is this not "just and reasonable" plus $.05?

Answer: It is intended that "costs" would have the same meaning as "just and reasonable."

Minority Members
Title V

Question 1: If Title V were enacted, what, if any, significance would be left of the Powerplant and Industrial Fuel Use Act?

Answer: The Fuel Use Act would still contain the electric utility prohibition order program under which existing electric powerplants receive orders to convert to alternate fuels. This program was substantially modified by the Omnibus Budget Reconciliation Act of 1981 and is supported by the utility industry. Other principal authorities remaining are the emergency authorities contained in section 404 and varying conservation programs including those under sections 403 and 808. In addition, provisions of Titles VI, VII, and VIII are not affected by the prohibitions of fuel use, and there is no reason to repeal these provisions as a result of either petroleum or natural gas decontrol.

Minority Members
Title V

Question 2: Congress has had a long history of involvement in efforts to encourage the use of coal in both industrial and utility applications. If Title V were enacted, what remaining policies would be on the books to encourage the use of coal?

Answer: There would be no law that required the consideration of coal as a fuel in new facilities other than the laws of economics. Current market forces are such that there is no incentive for new utility construction fired by oil or gas. To place this in context, the price of oil (or the equivalent gas price) would have to be about $10.00 per barrel, and be expected to stay at that level, before serious consideration would be given to new plant construction burning oil or gas.

The case is not quite as compelling for industrial applications, primarily due to size limitations and environmental restrictions. The operating cost advantage of coal, however, is always a price consideration; and no other artificial incentives are really necessary.

Question 3:	Could you please provide a detailed explanation of the manner in which incremental pricing affects the day-to-day operations of an interstate pipeline?
Answer:	In general, incremental pricing affects the day-to-day operations of interstate pipelines only by requiring compliance with certain accounting procedures. Incremental gas costs must be recorded and the surcharge absorption capability of downstream customers must be evaluated periodically. When a pipeline computes its PGA rate changes, the projected gas acquisition cost is reduced by the amount the pipeline expects to recover (if any) through incremental pricing surcharges. Incremental pricing has had a negligible effect on gas purchasing decisions. The only effect of incremental pricing on the natural gas field market appears to have been the widespread use of the incremental pricing threshold for deregulated gas (130 percent of the weighted average price of No. 2 fuel oil landed in the greater New York City metropolitan area) as the contract sale price for such deregulated gas.

Minority Members
Title V

Question 4: As a practical matter, are the incremental pricing requirements affecting industrial use of natural gas in today's market? Or are individual pipeline rate designs, off-system sales policies, state utility commission decisions, and the like actually more relevant than is incremental pricing in today's environment?

Answer: As a practical matter, incremental pricing requirements are not a major factor affecting industrial use of natural gas in today's market. There are three primary reasons for this. First, many states have adopted retail pricing policies that set industrial rates at the level of the alternative fuel price ceilings. Although industrial customers must pay this price at the retail level, they pay no incremental pricing surcharges. Second, the price of high-sulfur residual oil, which determines the price ceiling for incremental surcharges, has been falling. The alternative fuel price ceilings are in the neighborhood of four dollars per million Btu in nearly every state. Natural gas rates to industrial users have risen above this level for most parts of the country. With gas rates above the alternative fuel price ceiling, incremental pricing ceases to operated, and all purchased gas costs incurred by a pipeline flow into the PGA. Finally, incremental pricing is limited in its impact on the industrial sector by the small segment of the industrial sector subject to incremental pricing. All agricultural, forest products, and natural textile customers are exempt, as are electric utilities and qualifying cogenerators. Only the remaining large industrial boiler fuel facilities are subject to incremental pricing. There are probably only about 1200 non-exempt industrial customers at the present time. The greatest restraint on industrial gas use is the high cost of purchased gas. As noted above, industrial rates have generally risen above the level of the incremental pricing ceiling. Pipeline rate design certainly plays a role in setting industrial rates, but the cost of gas at the wellhead is the dominant factor.

Senator Wendell H. Ford

Question 1: I do not necessarily agree that gas prices should be frozen at their present levels plus inflation. But if the Administration wants to freeze prices for consumer protection, why shouldn't the freeze be applied to the price the seller receives rather than at the price the buyer can flow through?

Answer: There are essentially three reasons why the price restrictions imposed to protect consumers should apply to the price the buyer can flow through. First, the buyer (generally a pipeline) is one step closer to the ultimate consumer than is the producer. This makes price flowthrough restrictions more effective in protecting consumers because both pipelines and producers would be affected.

Second, it is by far a simpler approach. If we were to freeze prices or limit prices in areas at the wellhead, we would need a vast array of prices and allowable price increase schedules to reflect and adequately handle the many categories of gas already price controlled.

Third, price flowthrough restrictions facilitate ultimate decontrol because they allow prices at the wellhead to readjust while at the same time keeping pressure on to limit undue price increases. Pipelines can reconsider what mix of gas they purchase and can phase in changes over the next 2 years.

Question 2: If we freeze the amount of gas purchase costs the interstate pipelines can flow through, isn't it logical that the pipelines will not buy new gas supplies except under a precedent condition that FERC approve the passthrough by the pipeline of the gas purchase price?

Answer: Pipelines sign today and may in the future sign contracts that are conditioned on FERC approval of price increases. Lower contract prices also will result.

It is important to remember that the bill does not freeze gas cost increases. It only limits the amount of increased gas purchased costs pipelines may pass through immediately. Under the bill, pipelines may pass through gas cost increases above their allowed rate plus inflation only after these cost increases are found by FERC to be just, reasonable, and prudently incurred. We expect this requirement will not prevent pipelines from purchasing new supplies, but will increase greatly the rigor with which they attempt to negotiate the lowest possible price for such supplies. The passthrough limitation will simply ensure that, during the transition to a free market, producers and pipelines will not enter into contracts that cause unwarranted price fluctuations.

Senator Wendell Ford

Question 3:	If this happens, won't we be back in the situation of FERC price controls (albeit indirectly) which created the gas shortage and brought about the need for the passage of the NGPA?
Answer:	No, we will not be returning to FERC price controls, because the passthrough moratorium is not intended to absolutely prevent pipeline gas cost increases. Some increases may be necessary for particular pipelines and, FERC will allow them where appropriate. However, we expect most pipelines will experience falling average prices after the bill is enacted. With average pipeline gas purchase costs generally declining under the bill and with FERC approval of prudently incurred gas cost increases for certain pipelines, there is little likelihood that a system of indirect price controls with attendant shortages will develop.

Senator Wendell Ford

Question 4: The Administration says that this bill will afford consumer protection from price increases by preventing the interstate pipeline companies from passing through natural gas price increases in excess of inflation. Does this same passthrough freeze apply to intrastate pipelines?

Answer: The moratorium on automatic gas cost passthroughs does not apply to intrastate pipelines.

Senator Wendell Ford

uestion 5: If we freeze the interstate pipelines' right to flow through gas price increases and leave the intrastates with freedom to pass on price increases, will we not recreate a dual market in which the interstate pipelines can no longer compete? In other words, doesn't the Administration bill recreate most, if not all, the problems the NGPA was designed to solve?

nswer: No. In the transition period, the bill eliminates the immediate passthrough of increased purchased gas costs for interstate pipelines. A pipeline is granted an "allowed rate" that will be based on the average price that is paid for gas delivered to it during the month prior to passage of the bill. This rate will be adjusted to reflect inflation. It is important to remember that increases above this adjusted allowed rate are not prohibited. Rather, FERC can allow rate increases above that amount based on the reasonableness of the price and the need of the pipeline to acquire gas in order to provide adequate service to their customers.

Further, the transition period to a free market is relatively short. The key factor in creating the dual markets we experienced in the 1960's and 1970's was the perception of permanent regulation, resulting in long-term behavioral changes by all parties to the market. This will not occur under the Administration's proposal.

Senator Wendell H. Ford

Question 6:	Scrutiny of the bill reveals that a pipeline's automatic passthrough of purchased gas costs is restricted to that pipeline's average cost of gas in the month prior to passage plus inflation. If a pipeline has managed its business in an efficient manner and has held its purchased gas costs down, would the efficient pipeline not be at a competitive disadvantage with the high-cost pipeline in acquiring new gas reserves? Would the high-cost pipeline not be in a position to raid the efficient pipeline's old gas supply on January 1, 1985, when all producers could break their old gas sales contracts? I would appreciate your comment on why the Congress should reward inefficient pipelines and penalize the efficient ones.
Answer:	A pipeline's immediate passthrough of purchased gas costs is restricted to its "allowed rate" plus an "adjustment amount" to reflect inflation. This "allowed rate" is the average price it paid for gas delivered to it during the month preceding the enactment of the bill. This provision may put those pipelines with lower than average purchased gas costs at the time of passage at a slight temporary disadvantage. This disadvantage will be alleviated to some degree by the downward price pressure of the free market. However, we also decided to base the inflation adjustment factor on the national average cost of gas rather than to make it pipeline specific. This action is intended to give pipelines with gas costs below the national

average more flexibility in renegotiating contracts for old gas and in acquiring new sources of gas. Finally, if additional purchased gas adjustments are required and justified, FERC will allow them.

Senator Wendell Ford

Question 7: A pipeline's purchased gas costs include gas that it purchases from another pipeline. If the selling pipeline's increased rates are found to be just and reasonable by FERC, can the purchasing pipeline pass those increases through without restriction?

Answer: Under our purchased gas cost provision, a pipeline's purchased gas costs include gas purchased from another pipeline. The passthrough limitation focuses on the purchasing pipeline's allowed rate, and not on whether any particular component of the rate may be just or reasonable.

To the extent that a pipeline B's purchases are exclusively from a single pipeline A, whose purchases have previously been approved by the FERC, we would expect that the FERC would consider its findings in approving pipeline A's rate when considering pipeline B's rate.

Senator Wendell Ford

Question 8: I will appreciate your estimate of the price fly-up that will occur when the cap is removed on January 1, 1986, and the assumptions used in making that estimate.

Answer: We do not believe that gas prices will rise above the level of the cap when it is removed on January 1, 1986. From the date of enactment of the Administration's bill, bilateral renegotiation of contracts will occur. During 1985, S. 615 allows a unilateral "market-out" of contracts. It is our expectation that most, if not all, contracts will be renegotiated or marketed-out prior to January 1, 1986; and that the average price of these renegotiated contracts will be close to market-clearing levels, which will be competitive with alternative fuels. To the extent that some old gas contracts are not renegotiated by the end of 1985, the gas cap should be slightly above the market-clearing price in 1986. This is due to the cushion effect of unrenegotiated old gas contracts, which causes new gas prices to be slightly above the price that would obtain in an unregulated market.

Senator Wendell Ford

Question 9: It would appear that substantial supply disruptions for interstate pipelines could occur on January 1, 1985, when producers break their old gas contracts. I will apppreciate your projection of these potential disruptions on a best- and worst-case basis. What, if any, emergency measures do you suggest that Congress take to protect consumers on January 1, 1985?

Answer: Producers failing to renegotiate a new contract for old gas with interstate pipelines may indeed market out in 1985. Pipelines with high-cost gas may market out of their contracts as well.

The price that pipelines will agree to pay for both "old" and "new" gas will reflect the price of fuels with which gas competes in the marketplace. It is our belief that the interstate pipeline network is sufficiently interlinked to permit sales of gas between producers and interested buyers. These two factors guarantee that substantial supply disruptions will not occur on January 1, 1985.

I believe that additional emergency measures are not needed to protect consumers because it is highly unlikely that supply disruptions will occur.

Senator Howard M. Metzenbaum

Question 1: What is the justification for decontrolling old gas? Producers have recovered their investment. They are making a profit and the gas is flowing. Isn't the consumer better served by continuing controls on old gas as a cushion against the shock of decontrolling the rest of the market?

Answer: Old gas must be decontrolled to provide lower prices overall to consumers. S. 615 will accomplish this by encouraging domestic gas producers to maximize the development and production of low-cost gas. A significant amount of this gas is currently shut-in or undeveloped because of the disincentives to produce it under the NGPA.

Old gas decontrol will also remove current subsidies for uneconomic, high-cost gas and import production. Currently skewed production incentives will be corrected to provide a more efficient gas supply market. High-cost supplies will not be produced until conditions warrant the expense. Uneven endowments of cheap, price-controlled gas under the current law will cause large disparities among pipelines in their attempt to secure new supplies and create inequities among their consumers. S. 615 will correct these inequities.

Senator Howard M. Metzenbaum

Question 2: Given the fact that intrastate pipelines and industrial buyers are not subject to oversight under this bill, isn't there a very real danger that they will bid up the price and tie up new gas supplies, recreating a dual market which will create shortages and higher prices for interstate customers?

Answer: It is extremely unlikely that intrastate pipelines and industrial buyers will bid up the price and tie up new gas supplies over the next few years. Industrials and intrastate pipelines that serve mainly industrial users simply cannot afford to pay high, above-market prices. Most large industrial users are very price sensitive and would switch to an alternative fuel rather than pay very high prices. Further, intrastate pipelines no longer have much of a cushion that would allow them to pay above-market prices to get new supplies.

Senator Howard M. Metzenbaum

Question 3: Wouldn't it be prudent to continue some sort of regulatory oversight after 1985 given this industry's dismal record for consumer protection? Doesn't it make sense to at least assure residential consumers, who have no fuel switching ability and are captive customers, that someone, even if it is FERC, will be around to make sure there is no price gouging?

Answer: FERC and State PUC's will still have their existing powers to deal with abusive and monopolistic practices. We are not proposing the deregulation of interstate pipelines. Price gouging by producers will be impossible because of the competitive wellhead market. The PGA limitation will serve as a transition mechanism to ensure that imprudent cost increases, vestiges of our current regulatory and contractual system, are not passed to *any* gas customers until the market is made more rational. When this happens in 1986, this special, transitional consumer guarantee will no longer be necessary.

Senator Howard M. Metzenbaum

Question 4: You have said the new passthrough standard will protect consumers. But FERC has interpreted current law in an anti-consumer way. What's to prevent it from doing the same with your language? For example, isn't it possible that FERC would interpret as "prudent" a pipeline decision to negotiate a price well above inflation in order to protect future supply?

Answer: The precise meaning of the "fraud and abuse" standard of NGPA Section 601 is still a matter of dispute, and it is involved in at least one major pending case before the FERC. It seems clear, however, that the Commission's power of review is at least somewhat narrower under Section 601 than it had been under the Natural Gas Act. The language of the new Section 603(b) of the NGPA that would be added by S. 651, on the other hand, makes it clear that the Commission is expected to exercise a broad and vigorous review of purchased gas costs. It is of course not possible to predict how the FERC would exercise that review power in particular future cases, and under some circumstances, it may in fact be prudent for a pipeline to pay a somewhat higher present price in order to assure future supply. The alternative to some administrative discretion in resolving such issues would be to incorporate rigid gas purchasing rules in legislation, and I do not believe that that alternative would serve the interests of consumers.

Senator Bill Bradley

Question 1: Mr. Secretary, I am very interested in your comments, especially your description of your earlier evaluation of a windfall profits tax.

a. First, I am pleased to hear that you have examined such a tax in order to assist consumers. Can I receive a copy of your analysis?

b. Second, you also said that availability of supply is more important than price; you said that shortages do grave damage to the economy and that we could assist low-income consumers financially. I agree.

But you went on to contend that returning old-gas-tax revenues to low-income consumers would not provide consumer protection. Isn't most of the old-gas price increase that would accompany the decontrol of old gas merely economic rent, in the economists' terms? Couldn't a portion of that rent be used as you suggest to assist low-income consumers?

Answer: There is no written analysis. Our efforts were to determine whether a windfall profits tax on natural gas would provide assistance to consumers. We analyzed available data and discussed this issue with numerous groups. When it became clear in our early discussions that such a tax would in fact be harmful to consumers, we devoted our efforts to other, more promising policy options and therefore did not prepare a written analysis of the tax.

I can, however, give you the substance of that analysis. A windfall profit tax would, if it were perfectly applied, expropriate much of the increased value of deregulated old gas from producers. These producers would then face few incentives to increase production from their old gas fields and would be unable to use revenues generated from old gas for exploration, development, and production of new gas finds. As compared to deregulation without the tax, imposition of a tax would reduce incentives to increase gas production from old sources and to find new sources. This would cause supply to be lower and consumer prices to be higher than would be the case without the tax.

It is interesting, in addition, to compare the effects of deregulation coupled with a windfall tax with the NGPA. Under the NGPA, old gas prices in effect subsidize production and consumption of expensive new gas through the price averaging mechanism. Supplies are increased, though (as we have seen) the result is that expensive gas is produced while cheap old gas goes unproduced. The windfall tax would have the same suppressing effect on old gas production but would not have the NGPA's effect of increasing supplies of new gas. Therefore, it was clear to us that a windfall tax would be worse for consumers than either the Administration's proposal or the existing NGPA regulations.

With regard to the impact of natural gas prices on low-income consumers, low-income assistance programs do exist. The funding levels of these programs is a matter to be addressed by the Department of Health and Human Services.

Senator Bill Bradley

Question 2: Will the price of old gas under decontrol as you propose be any different if we were to tax 80 percent of the difference between the old NGPA controlled price and the market price of that gas?

Answer: If the Federal Government were to tax the difference between the market price and the NGPA regulatory ceilings, producers would have little incentive to raise production of old gas and more fully develop old gas reserves. Thus, a tax on old gas would have a detrimental effect on production of old gas. Because a tax on old gas would also eliminate the cushion that now subsidizes high-cost gas production, total gas supplies would be significantly reduced by the tax on old gas. Lower gas supplies would cause the price of old gas and the average price of gas to be higher than would occur under S. 615 and possibly the NGPA as well. Indeed, any reduction in gas supplies leading to higher gas prices would tend to shift some demand for gas to oil and other alternative fuels. Additional demand for oil would in turn result in higher oil imports and put upward pressure on oil prices.

Senator Bill Bradley

Question 3:	Can you give me some estimate of the effect of old gas decontrol on average natural gas prices (either by State or by pipeline)?
Answer:	The Department has not analyzed the effects of S. 615 upon individual States or pipelines. Analysis has been completed on how interstate and intrastate gas markets will be affected by the Administration's proposal.

The effects of not decontrolling old gas are:

1. Higher prices for other gas. The 104 cushion will result in above market bidding for other categories of gas.

2. There will be less incentive to maximize old gas supplies.

3. There will be a higher average price for all categories.

Senator Bill Bradley

Question 4:	Will average prices of high-cost pipelines such as Transco fall, rise, or stay the same with the decontrol of old gas?
Answer:	The Department of Energy has not analyzed the affect of S. 615 upon individual pipelines. However, we believe, in general, the following effect will occur after passage of S. 615. Those pipelines that currently have an average price higher than the national average price and are sufficiently interconnected with other pipelines will be able to renegotiate their high-price contracts or substitute lower price gas for their current high-cost supplies. As a result, we expect S. 615 will cause "high-cost" pipelines' prices to fall.

Senator Bill Bradley

Question 5:	Can you explain why there is such a large variation in gas prices across regions of the country?
Answer:	The roots of the large variation in gas prices across regions of the country stem from two factors. First, gas prices to consumers include the cost of transporting gas; a consumer distant from the area where gas is produced will, as a result, pay a higher price than consumers closer to areas of gas production. Secondly, pipelines have widely varying average purchase prices. For example, the range between the 20 major interstate pipelines' average purchase price of gas from producers was $1.56 (1982 dollars per mcf) for the middle of 1982. The reason for the widely varying purchase price of gas between pipelines is largely the different endowments of inexpensive price-controlled gas. When the NGPA was enacted in 1978, some interstate pipelines possessed, largely through historical circumstance, large quantities of low-cost supplies; other pipelines, particularly those in the intrastate market, had considerably less low-cost supplies. The NGPA maintained price

Senator Bill Bradley

Question 6: Who benefits from price controls on old gas, the consumer or the producers of new gas? Please explain in detail.

Answer: The consumer has not benefited from continuing price controls on old gas. The major beneficiaries of price controls on old gas are the producers of high-cost gas. In most cases, they would be unable to sell their gas at the prices currently charged if it were not for the existence of less expensive, older gas. Pipeline companies, the major purchasers of gas, average in the cost of high-cost gas with the cost of low-cost gas and then resell it at a price reflective of the weighted average cost of their gas.

Senator Bill Bradley

Question 7:	Several pieces of legislation proposed so far try to *selectively* abrogate contracts. Some would abrogate take-or-pay, some would abrogate indefinite price escalators, some would abrogate area rate clauses, some would abrogate most-favored-nation clauses, some would even abrogate imported gas contracts. Are you confident that Congress or FERC will be able to selectively choose which contracts they don't like from those that they do?
Answer:	There are no contracts that are inherently "problem" or "non-problem." The problem is regulation, which distorts the market and contracting practices. Selecting some contracts as "problem" contracts only would give rise to new regulatory distortions that would spawn new "problem" contracts. This is the reason S. 615 includes the market-out provision once the transition to a free market is at hand. The market-out will allow producers and purchasers to negotiate contract terms that reflect market realities and not regulatory constraints.

ENERGY AND NATURAL RESOURCES COMMITTEE
HEARING ON
PENDING NATURAL GAS LEGISLATION
THURSDAY, MARCH 10, 1983
9:30 a.m.
ROOM SD-365

WITNESS LIST

The Honorable John Danforth

The Honorable Nancy Kassebaum

The Honorable Thomas Eagleton

U.S. Conference of Mayors
Represented by: The Honorable Richard Berkley
Mayor of Kansas City, Missouri

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Panel 1

Mr. Howard Marlowe, Associate Director
AFL/CIO

Mr. Robert M. Brandon, Executive Director
Citizen/Labor Energy Coalition

Dr. Mark Cooper
Consumer Energy Council of America

Mr. David I. Greenberg, Legislative Director
Consumer Federation of America

Panel 2

Chemical Manufacturers Association
Represented by: Mr. James D. Beatty, Manager
Energy-Engineering Gov't Relations
Procter & Gamble Company

Council of Industrial Boiler Owners
Represented by: Mr. Richard J. Bryan
Burlington Industries

Petrochemical Energy Group
Represented by: Mr. Patrick McNamara
Dow Chemical

Process Gas Consumers
Represented by: Mr. Jack Elam
Cone Mills Corporation

Panel 3

Mr. Wayne Harmon, Executive Vice President
Louisiana Association of Independent Producers
and Royalty Owners

Mr. James V. Walzel, President
Houston Pipeline

Mr. J. L. Terrill, President
Louisiana Intrastate Gas Corporation

Mr. Bill Greehey, Chief Executive Officer
Valero Energy Corporation

Mr. Vernon T. Jones, Executive Vice President
The Williams Companies

QUESTIONS FROM VARIOUS REPUBLICAN MEMBERS OF THE COMMITTEE

1. Please provide the Committee with the specific legislative language necessary to implement those changes to the Administration's bill, S. 615, that you identified in your oral and written testimony as being necessary. Also please provide the Committee a justification for each of your recommended changes.

2. Please provide the Committee with your estimate of the amount by which gas prices would increase or decrease, both over the short-run and over the long-run if S. 615 is enacted.

3. Please provide the Committee with your estimate of the amount by which gas supplies and gas reserves would increase or decrease, both over the short-run and over the long-run, if S. 615 is enacted.

4. Please provide the Committee with your estimate of the level of the gas cap if S. 615 were enacted today and the amount by which the cap would reduce average purchased gas costs.

5. Some witnesses appearing before the Committee have suggested that enactment of S. 615 would bring about chaos in the gas market. Please provide the Committee with your assessment of the prospect of that occurring.

QUESTIONS FROM REPUBLICAN MEMBERS OF THE COMMITTEE

1. In CLEC's opinion, if the use of take-or-pay provisions in producer/pipeline contracts were limited or eliminated altogether, would producers demand a higher price for their gas at the wellhead? If this were to occur, wouldn't the consumer savings from limiting the use of take-or-pay provisions be offset be higher wellhead prices?

2. What proportion of residential price increases experienced over the last year or anticipated for this winter are attributable to wellhead price increases as opposed to pipeline charges or changes in mix of NGPA category available to the pipelines?

3. In CLEC's opinion, what impact would the various proposals currently pending before the Committee*/ have on:

   --residential, commercial and industrial gas prices?
   --short-term and long-term gas supplies?
   --the financial situation of producers, pipelines and gas distribution companies?

4. In CLEC's opinion, to what extent and on what matters does the Federal Energy Regulatory Commission have the statutory authority to take action to address current and potential future problems in the gas market? Please provide the Committee with a detailed legal analysis of the FERC's authority. What actions would you recommend that the FERC take?

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*/ S. 2074; S. 2892; S. 3028; S. 3054; S. 3069; S. 3070; S. 3076; S. 3088.

MINORITY MEMBERS' ADDITIONAL QUESTIONS FOR NATURAL GAS HEARING RECORD

Witnesses Appearing March 10, 1983

Questions For Panel One

1. Do you support any of the bills pending before the Committee on Energy and Natural Resources? If so, please indicate which one(s).

2. Please provide the Committee with specific statutory language for any amendments you would like to see adopted if the Committee were to use S. 615 as mark-up vehicle for natural gas legislation.

3. If the amendments you support are not adopted, and if you had to vote up or down on S. 615, would you support it or would you support a continuation of the existing law?

4. If new natural gas legislation is not enacted, how much do you project residential prices will increase each year for the next five years?

5. Would most of the price increases you expect under the NGPA be due to increases in gas purchase costs, or increases in other component parts of pipeline rates, increases in distribution costs?

6. How do your projections for what will happen without legislation compare with what would happen if S. 615 were enacted?

7. In his testimony yesterday Secretary Hodel said that in his discussions with consumer groups, none advocated imposition of a tax on old gas.

    a. What is your position on a windfall profits type tax?

    b. If given a choice between deregulation of old gas and deregulation coupled with a tax, what would be your position?

    c. Have you or others in your organization discussed your views on the tax issue with the Secretary or his staff?

8. If we were to decontrol all wellhead prices of natural gas, would you advocate deregulating--

    a. interstate pipelines;

    b. intrastate pipelines; or

c. local distribution of natural gas?

9. If controls are removed in the manner proposed by the Administration, or in any other manner, will prices rise or fall? By how much? Why?

10. If prices fall, how much will production fall?

11. If prices rise, how much will production rise?

12. Can you explain specifically and in detail why prices are not falling now?

13. Giving a broad interpretation to the Natural Gas Act and the Natural Gas Policy Act, what authority might the FERC have to remove barriers to the fall prices? Could its authority under Section 601(c) of the NGPA, concerning limitations on passthroughs in the event of "fraud, abuse, or similar grounds", be interpreted to provide such authority? Could its rule-making authority under Section 501(a) of the NGPA be used to rectify the situation?

QUESTIONS FOR MR. MARLOWE

1. On the first page of your statement you say,

> "Under the Administration's proposal, all natural gas would be deregulated and natural gas producers would be free to use their monopoly power to withhold natural gas from consumers".

a. In what way do natural gas producers have a monopoly?

b. Even if they had a monopoly why would a monopolist withhold his product from the market?

c. Why wouldn't he want to sell as much as he could at monopoly prices?

2. In calling for a price rollback for natural gas, do you have any concern that the outcome in the long run will be gas shortages, such as those we experienced in 1976-1977 which put many workers out of jobs? If Congress were to roll back prices on natural gas, at what price would you start to worry about workers losing their jobs because of gas shortages and consequent curtailments?

3. You advocate a return to regulating the gas industry to provide "just and reasonable" prices based on the cost of production and to ensure the delivery of an adequate supply of natural gas to consumers. Are you confident that the Commission could administer such regulation of the entire gas industry? How would the Commission ensure the delivery of an "adequate" supply of natural gas to consumers? Didn't we try this approach several years ago? Did it work?

QUESTION FOR MR. BRANDON

1. Your charts show the impact of "phased" and "total decontrol.

   a. Do they take into account the Administration's PGA passthrough limitation?

   b. Do they take into account the Administration's gas cap mechanism?

QUESTIONS FOR DR. COOPER

1. On page 10 of your statement, you refer to the "maldistribution of the chips in the bargaining process" as evidenced by the pace with which contracts have been altered to index gas prices to #2 heating oil prices.

   a. Are you suggesting that the producers have superior bargaining power than do the pipelines?

   b. Who is holding all the chips are you see it?

2. You advocate on page 14 of your statement a return to the "just and reasonable" standards of the Natural Gas Act. But you also seem to have given up on the FERC to the extent that it is provided any discretionary authority by the NGPA or by the Administration's bill. Who do you propose should determine what is "just and reasonable" if it isn't the FERC?

3. On page 8 of your statement you say that fundamental flaws in the market -- "structural and institutional imperfections" have created the problem, not the NGPA. However, your seven parts of the "solution" do not appear to change any structural and institutional aspects of the gas industry. Do you intend to solve the structural institutional imperfections with your "solution"?

4. On page 13 of your statement you say that you are convinced that "FERC has done such a fundamental injustice to the Congressional intention of that Act (NGPA) that is must be retooled." Does this mean you advocate that this Committee rewrite the NGPA? You prefer that to the status quo?

5. Who within the member groups of the Consumer Energy Council have you consulted in arriving at your position in this testimony? Is it accurate to say that all these groups agree with your testimony?

6. Could you elaborate on your observation stated on page 11 of your testimony that the fact that gas prices are not falling indicates that there is no competition in the market? What about the argument that contracts written several years ago when the industry expected gas shortages contain escalator clauses which make the FERC ceilings into floors. The parties to those contracts are bound by them, are they not? Why doesn't this explain the problem?

7. You assert on page 11 that if there were competition in the market then gas prices would be falling now -- they are not, ergo, there is no competition in the gas market. Do you really mean that?

8. How many of the instances in which you dispute FERC's interpretation of the law is your organization litigating in court?

QUESTIONS FOR MR. GREENBERG

1. Please provide the calculations and assumptions you used to estimate that the President's package would produce $40 billion of profit to the major oil and gas companies.

2. Please substantiate your claim that Secretary Schlesinger "was forced to raise its estimate (of the cost of oil decontrol) to almost $50 billion" from $16 billion.

3. Which "Congressional" study of the cost of oil decontrol are you referring to on page 3 of your testimony?

4. Your charts show the impact of "phased" and "total" decontrol.

   a. Do they take into account the Admininstration's PGA passthrough limitation?

   b. Do they take into accont the Administration's gas cap mechanism?

5. With regard to your views on the state of competition in the gas industry, you state on page 5 that:

> "2. Twenty large producers of natural gas control over half the gas market and over two-thirds of the oil market, an oligopoly situation."

Do you know of any court or any economist who has characterized a market as lacking competition just because there are 20 firms who control half the market? For example compare this to the auto industry.

6. You offer substantial detail as to what the costs to the consumer would be if old gas is deconrolled, but you make no comments on the likely effect in the long run of prices of high cost gas. The section 107 high prices are viable today because of rolled in pricing with old gas. Do you think that decontrol of old gas would tend to force down the price of what is now high cost gas? If so, don't you have to consider that to determine the net cost to consumers?

American Federation of Labor and Congress of Industrial Organizations

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March 24, 1983

Mr. Howard Useem
Committee on Energy and
Natural Resources
United States Senate
Washington, D.C. 20510

Dear Mr. Useem:

The following is provided in response to your informal communication of March 11th:

(1) The AFL-CIO does not support any of the bills currently before the Committee on Energy and Resources.

(2) We support H.R. 2154 and urge the Committee to substitute the language of this bill for S. 615.

(3) We would not support S. 615 under any circumstances.

(4) We estimate natural gas prices will increase 15 to 20 percent per year if natural gas consumer relief legislation is not enacted.

(5) Most of the increases would be due to increased gas purchase costs.

(6) Prices will go up by a greater percentage if S. 615 is enacted than if no legislation is passed. This is due to S. 615's proposal to decontrol all gas and its failure to provide adequate consumer protection against price rises from a non-competitive gas industry.

(7) We firmly believe that old gas must remain under controls. Therefore, there will be no need for a windfall tax on old oil.

(8) Our answer is "No" to each of the questions.

(9) We believe that prices will rise, perhaps by as much as 70 percent over the next four years. This is due to the failure of S. 615 to maintain price controls, the bill's provision to establish a "gas cap" by negotiation between large industrial users and producers, and its failure to provide adequate consumer protections. A more complete description of our views on this subject is contained in our prepared statement submitted to the Committee.

(10) and (11) The assumption that a decrease in price will produce a decrease in production cannot be substantiated by any facts. As to the converse assumption, the February 28, 1983 Department of Energy study predicts that, after 1985, prices will increase and production will decrease under decontrol when compared to continuing price controls. Using ever-higher prices to encourage production is the wrong approach for Congress to take.

(12) Prices are not falling now because the major gas producers have an anti-competitive lock on the industry. These producers are greedily charging the highest price they can get. The "take-or-pay" contracts and other similar contractual provisions are also driving up the cost of natural gas.

(13) We believe that FERC has the authority under existing law to deny pass-throughs of prices that are abusive and to provide relief from "take-or-pay" contracts.

Sincerely,

Howard Marlowe

Howard Marlowe
Associate Director,
Department of Legislation

APR 14 1983

Howard

citizen/labor energy coalition

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Official Committee File

SENATE COMMITTEE ON
ENERGY AND NATURAL RESOURCES
RECEIVED
APR 14 1983
WASHINGTON, D.C. 20510

April 6, 1983

Honorable James A. McClure
Chairman
Committee on Energy and Natural
  Resources
3106 Dirksen Senate Office Building
Washington, D.C. 20510

Dear Mr. Chairman:

Enclosed please find the responses to the follow-up questions to my testimony given at the Committee's hearings on natural gas.

Again, I would like to thank you for the opportunity to participate in the hearing and to provide the Coalition's view on this issue.

Sincerely,
Robert M Brandon
Robert M. Brandon
Executive Director

Enclosure

Answers to Follow-Up Questions for the March 10, 1983 Hearing

1. Do you support any of the bills pending before the Committee on Energy and Natural Resources? If so, please indicate which one(s).

   The Citizen/Labor Energy Coalition is working with a bipartisan coalition of Senators in drafting the Natural Gas Consumer Relief Act, a bill which will be introduced shortly.

2. Please provide the Committee with specific statutory language for any amendments you would like to see adopted if the Committee were to use S. 615 as mark-up vehicle for natural gas legislation.

   Since we are supporting the Natural Gas Consumer Relief Act, we would support that bill as a substitute for S. 615. Because we believe that the underlying concept of S. 615 -- decontrol of old gas -- is inherently flawed and governs the remaining structure of the bill, it would be difficult to propose any specific amendments. However, two major amendments would be essential: removing old gas decontrol and making the changes in Section 601(c) pass-through authorities permanent.

3. If the amendments you support are not adopted, and if you have to vote up or down on S. 615, would you support it or would you support a continuation of the existing law?

   Since we believe S. 615 would raise consumer prices even higher, we would not support its passage. However, we continue to believe that positive action is critical in solving today's high gas price problem.

4. If new natural gas legislation is not enacted, how much do you project residential prices will increase each year for the next five years?

   We would anticipated price increases of 15% to 20% a year.

5. Would most of the price increases you expect under the NGPA be due to increases in gas purchase costs, or increases in other component parts of pipeline rates, increases in distribution costs?

   Most of the costs would be attributable either directly or indirectly to increases at the wellhead. Indirect costs include higher transmission costs due to the use of natural gas by pipelines or higher per unit costs due to dual capacity users switching to cheaper, alternative fuels.

6. How do your projections for what will happen without legislation compare with what would happen if S. 615 were enacted?

   We believe that prices under continuation of the NGPA would be less than prices under an accelerated decontrol scenario. A more detailed analysis is contained in the study we provided the Committee at the hearing, "Gas Prices Out of Control: The Cost of Inaction."

7. In his testimony yesterday, Secretary Hodel said that in his discussions with consumer groups, none advocated imposition of a tax on old gas.

   a. What is your position on a windfall profits type tax?
   b. If given a choice between deregulation of old gasn and deregulation coupled with a tax, what would be your position?
   c. Have you or others in your organization discussed your views on the tax issue with the Secretary or his staff?

   In a meeting with Secretary Hodel, Energy Coalition representatives made clear our position in opposition to a windfall profits tax on natural gas accompanying deregulation. The history of the crude oil windfall profits tax has shown that consumers gain little. Not only do energy users pay higher prices, but very little of the revenues are returned to help consumers deal with the negative effects of those prices. We would not support decontrol of old gas in any form.

8. If we were to decontrol all wellhead prices of natural gas, would you advocate deregulating --

   a. interstate pipelines;
   b. intrastate pipelines; or
   c. local distribution of natural gas?

   Obviously, regulation of pipelines and distribution companies becomes more difficult with wellhead deregulation, given the high percentage of end user costs attributable to the cost of gas itself. However, we would not support deregulation of pipelines or distribution companies should deregulation occur.

9. If controls are removed in the manner proposed by the Administration, or in any other manner, will prices rise or fall? By how much? Why?

   The Coalition estimates prices would rise by 67% over the next four years with accelerated deregulation. While some marginal supplies of gas would fall in price, the vast majority of gas prices would rise to levels determined by the gas producers in most instances. We do not believe that the present market situation has changed substantially in providing gas producers with high levels of market dominance, nor do we believe that pipelines, FERC, or distribution companies will act in the future as tough bargaining agents, either because of their inability or unwillingness to confront producers.

10. If prices fall, how much will production fall?

    It is not necessarily true that production will fall with lower prices. Gas production is hampered today by falling demand, not inadequate production incentives. Keeping targetted incentives while lowering prices to levels which will spur demand will help production.

11. If prices rise, how much will production rise?

    Again, rising prices may well dampen production by placing gas beyond the reach of many users. Raising prices for old gas while lowering prices beyond reasonable levels for frontier gas could similarly hurt production by removing targetted incentives.

12. Can you explain specifically and in detail why prices are not falling now?

There are several reasons for prices continuing to rise in today's market. First, producer/pipeline contracts contain provisions such as take-or-pays or requirements that maximum allowable prices be the contract price. While some producers may be willing to renegotiate, many others are not, concerned about royalty or shareholder interests. Second, the FERC has failed to act to deny pass-throughs of abusive prices or contract terms.

13. Giving a broad interpretation to the Natural Gas Act and the Natural Gas Policy Act, what authority might the FERC have to remove barriers to the fall prices? Could its authority under Section 601(c) of the NGPA, concerning limitations on passthroughs in the event of "fraud, abuse, or similar grounds," be interpreted to provide such authority? Could its rule-making authority under Section 501(a) of the NGPA be used to rectify the situation?

The Energy Coalition filed a petition with the Commission last fall asking it to use its authorities under the NGA and NGPA to act to eliminate or reduce unreasonable and anti-consumer contract provisions. We believe that FERC has the authority both on a case-by-case basis and through generic rulemaking to address not only the pass-through question but contract problems through its NGA and NGPA authorities.

1. Your charts show the impact of "phased" and "total decontrol."
   a. Do they take into account the Administration's PGA pass-through limitation?
   b. Do they take into account the Administration's gas cap mechanism?

The study we prepared looking at the accelerated decontrol scenario was completed before the final details of the Administration's bill were released. However, after reviewing the Administration's bill, we found it difficult to quantify whether there would be any savings at all from those two "consumer protection" mechanisms. The limit on the PGA pass-through limitation, for example, is simply a limit on automatic pass-throughs. There is no limit on pass-throughs of increased costs after an expedited FERC review. Indeed, FERC Chairman Butler himself has argued that increases above inflation would have to be passed through to avoid a dual market problem. Similarly, it is difficult to estimate how many contracts will be amended or renegotiated and therefore not be subject to the gas cap. We are, however, in the process of reassessing our initial estimates to take into account some of the particulars of the President's proposal.

RESPONSES TO MINORITY MEMBERS' ADDITIONAL QUESTIONS FOR NATURAL GAS HEARING RECORD

Witness, Mark N. Cooper, Appearing March 10, 1983

Questions for Panel One

1. "Do you support any of the bills pending before the Committee on Energy and Natural Resources? If so, please indicate which one(s)?"

   We will support the Kassenbaum/Eagleton bill as outlined on Thursday, March 10.

2. "Please provide the Committee with specific statutory language for any amendments you would like to see adopted if the Committee were to use S. 615 as mark-up vehicle for natural gas legislation."

   Substitute Gephart or Kassenbaum/Eagleton.

3. "If the amendments you support are not adopted, and if you had to vote up or down on S. 615, would you support it or would you support a continuation of the existing law?"

   Continue existing law.

4. "If new natural gas legislation is not enacted, how much do you project residential prices will increase each year for the next five years?"

   We have not made a study of this issue, nor did we offer any guesses in testimony. A good rule of thumb that we have found useful in the past is to take the highest and lowest estimates and average them.

5. "Would most of the price increases you expect under the NGPA be due to increases in gas purchase costs, or increses in other component parts of the pipeline rates, increases in distribution costs?"

   Clearly, gas costs are the prime cause of price increases.

6. "How do your projections for what will happen without legislation compare with what would happen if S. 615 were enacted?"

In the short term, we expect a price increase. In the long term we expect continuous price levels far above the marginal cost of production. Current legislation captures the economic rents on old gas, thereby giving some price relief.

7. "In his testimony yesterday Secretary Hodel said that in his discussions with consumer groups, none advocated imposition of a tax on old gas.

   a. What is your position on a windfall profits type tax?

   b. If given a choice between deregulation of old gas and deregulation coupled with a tax, what would be your position?

   c. Have you or others in your organizaton discussed your views on the tax issue with the Secretary and his staff?"

a. Windfall profits taxes are very ineffective ways to capture rents; tax incidence analysis shows that consumers end up paying a large part of the tax.

b. There is little difference between the two.

c. Yes.

8. "If we were to decontrol all wellhead prices of natural gas, would you advocate deregulating --

   a. interstate pipelines;

   b. intrastate pipelines; or

   c. local distribution of natural gas?"

Deregulating wellhead prices would make regulation of other segments of the industry more important.

9. "If controls are removed in the manner proposed by the Administration, or in any other manner, will prices rise or fall? How much? Why?"

They must rise because the renegotiation of prices upward will proceed much more rapidly than any downward renegotiations.

10. and 11. "If prices fall, how much will production fall?"

"If prices rise, how much will production rise?"

Production will fall with decontrol no matter what happens to prices because the economic rents currently being transfered from owners of old gas to those looking for new gas will be captured by old gas producers. They have little incentive to increase production from old fields. Producers of new gas will reduce production because of the decreased rents.

12. "Can you explain specifically and in detail why prices are not falling now?"

That was the point of my testimony.

13. "Giving a broad interpretation to the Natural Gas Act and the Natural Gas Policy Act, what authority might the FERC have to remove barriers to the fall of prices? Could its authority under Section 601(c) of the NGPA, concerning limitations on passthroughs in the event of 'fraud, abuse, or similar grounds', be interpreted to provide such authority? Could its rule-making authority under Section 501(a) of the NGPA be used to rectify the situation?"

Yes, on both counts.

Questions for Dr. Cooper

1. "On page 10 of your statement, you refer to the "maldistribution of the chips in the bargaining process" as evidenced by the pace with which contracts have been altered to index gas prices to $2 heating oil prices.

    a. Are you suggesting that the producers have superior bargaining power than do the pipelines?

    b. Who is holding all the chips as you see it?"

a. Yes.

b. The major producers.

2. "You advocate on page 14 of your statement a return to the 'just and reasonable' standards of the Natural Gas Act. But you also seem to have given up on the FERC to the extent that it is provided any discretionary authority by the NGPA or by the Administration's bill. Who do you propose should determine what is 'just and reasonable' if it isn't the FERC?"

   "Just and reasonable" has a judicial history and underpinning.

3. "On page 8 of your statement you say that fundamental flaws in the market -- 'structural and institutional imperfections' have created the problem, not the NGPA. However, your seven parts of the 'solution' do not appear to change any structural and institutional aspects of the gas industry. Do you intend to solve the structural institutional imperfections with your 'solution'?"

   We propose to perfect the regulation of an industry whose imperfect structure is beyond repair.

4. "On page 13 of your statement you say that you are convinced that 'FERC has done such a fundamental injustice to the Congressional intention of that Act (NGPA) that it must be retooled.' Does this mean that you advocate that this Committee rewrite the NGPA? You prefer that to the status quo?"

   Yes.

5. "Who within the member groups of the Consumer Energy Council have you consulted in arriving at your position in this testimony? Is it accurate to say that all these groups agree with your testimony?"

   This policy position is a long standing position of the Council which all of its members support in principle.

6. "Could you elaborate on your observation stated on page 11 of your testimony that the fact that gas prices are not falling indicates that there is no competition in the market? What about the argument that contracts written several years ago when the industry expected gas shortages contain escalator clauses which make the FERC ceilings into floors. The parties to those contracts are bound by them, are they not? Why doesn't this explain the problem?"

The contract behavior of the industry shows clearly the maldistribution of power. When market conditions were tight, producers extracted the very contract clauses which are the cause of the current situation. Now that market conditions are slack, we find that pipelines cannot get the provisions removed. It is this asymmetry which is most troubling. The fact that the invocation of *force majeure* or the threat of it has done little to move prices down clearly suggests that contracts are only binding in some instances (when they are propping prices up) and not in others (when they stand in the way of price increases).

7. "You assert on page 11 that if there were competition in the market then gas prices would be falling now -- they are not, ergo, there is no competition in the gas market. Do you really mean that?"

   Throughout the testimony I offer a complex (some would say too complex) explanation of a number of market imperfections which push prices up. The observable result of prices failing to fall reflects the aggregate impact of those conditions.

8. "How many of the instances in which you dispute FERC's interpretation of the law is your organization litigating in court?"

   Directly, we are litigating one -- the Phase II incremental pricing rule. Members of the Council individually or through other organizations are litigating several others.

QUESTIONS FROM VARIOUS REPUBLICAN MEMBERS OF THE COMMITTEE

1. Please provide the Committee with the specific legislative language necessary to implement those changes to the Administration's bill, S. 615, that you identified in your oral and written testimony as being necessary. Also please provide the Committee a justification for each of your recommended changes.

2. Please provide the Committee with your estimate of the amount by which gas prices would increase or decrease, both over the short-run and over the long-run if S. 615 is enacted.

3. Please provide the Committee with your estimate of the amount by which gas supplies and gas reserves would increase or decrease, both over the short-run and over the long-run, if S. 615 is enacted.

4. Please provide the Committee with your estimate of the level of the gas cap if S. 615 were enacted today and the amount by which the cap would reduce average purchased gas costs.

5. Some witnesses appearing before the Committee have suggested that enactment of S. 615 would bring about chaos in the gas market. Please provide the Committee with your assessment of the prospect of that occurring.

QUESTIONS FROM REPUBLICAN MEMBERS OF THE COMMITTEE

1. The Associated Gas Distributors note in their written testimony (p.2) that they have four areas of concern with respect to natural gas policy:

    1. the need to bring retail gas market signals more quickly and accurately to the wellhead market;
    2. the need to assure that gas distributors can be informed as to the supply acquisition prices and practices of their suppliers and that they can act to protect their interests;
    3. the need to remove the economic windfalls to natural gas producers under the NGPA; and
    4. the need to enhance interstate gas supply security though regulation of pipeline transportation service.

    Q. In AGD's opinion, do any of the proposals currently pending before the Committee*/ address satisfactorily all of these concerns?

2. On p. 6 of AGD's testimony it urges Congress to amend NGPA Sec. 601 (c)(2) to include a "prudence" standard for pipeline purchases of natural gas.

    Q. In AGD's opinion, why can't the FERC achieve this objective using their authority under Sec. 5 of the Natural Gas Act?

    Q. Isn't the FERC looking at this matter right now in their Tennessee Gas Pipeline proceedings?

3. AGD's testimony outlines various problems that distributors are currently encountering and believe that will occur in the near future as the NGPA plays out.

    Q. In AGD's opinion, do any of the proposals currently pending before the Committee */address all of the various aspects of the "natural gas problem"?

    Q. In AGD's opinion, what impact would the various proposals currently pending before the Committee */ have on:

    --residential, commercial and industrial gas prices?
    --short-term and long-term gas supplies?
    --the financial situation of gas distributors?

4. In AGD's opinion, to what extent and on what matters does the Federal Energy Regulatory Commission have the statutory authority to take action to address current and potential future problems in the gas market? Please provide the Committee with a detailed legal analysis of the FERC's authority. What actions would you recommend that the FERC take?

*/ S. 2074; S. 2892; S. 3028; S. 3054; S. 3069; S. 3070; S. 3076; S. 3088.

QUESTIONS FROM REPUBLICAN MEMBERS OF THE COMMITTEE

1. In the Process Gas Consumer's opinion, what impact would the various proposals currently pending before the Committee[*] have on:

   --residential, commercial and industrial gas prices?
   --short-term and long-term gas supplies?
   --the financial situation of producers, pipelines and gas distribution companies?

2. In PGC's opinion, to what extent and on what matters does the Federal Energy Regulatory Commission have the statutory authority to take action to address current and potential future problems in the gas market? Please provide the Committee with a detailed legal analysis of the FERC's authority. What actions would you recommend that the FERC take?

[*] S. 2074; S. 2892; S. 3028; S. 3054; S. 3069; S. 3070; S. 3076; S. 3088.

QUESTIONS FROM REPUBLICAN MEMBERS OF THE COMMITTEE

1. In the Petrochemical Energy Group's opinion, what would be the effect of a price freeze on the reliability of your natural gas supplies?

2. In PEG's opinion, what impact would the various proposals currently pending before the Committee*/ have on:

   --residential, commercial and industrial gas prices?
   --short-term and long-term gas supplies?
   --the financial situation of producers, pipelines and gas distribution companies?

3. In PEG's opinion, to what extent and on what matters does the Federal Energy Regulatory Commission have the statutory authority to take action to address current and potential future problems in the gas market? Please provide the Committee with a detailed legal analysis of the FERC's authority. What actions would you recommend that the FERC take?

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*/ S. 2074; S. 2892; S. 3028; S. 3054; S. 3069; S. 3070; S. 3076; S. 3088.

Questions for Panel Two

1. As Senator Johnston requested, please indicate which of the bills pending before the Committee you support.

2. As Senator Johnston requested, please provide the Committee with specific statutory language for any amendments you would like to see adopted if the Committee were to use S. 615 as mark-up vehicle for natural gas legislation.

3. If the amendments you support are not adopted, and if you had to vote up or down on S. 615, would you support it or would you support a continuation of the existing law?

4. How much of each of your groups' purchases fall into the direct sale category? Of those direct sales, which customers and which volumes are served by interstate pipelines? Which are served by intrastate pipelines?

5. Do you support the Administration bill's "market-out" provision?

6. As a technical matter, do you believe Sec. 303, as drafted, applies to all contracts, as Secretary Hodel said it does, or only to first sales, thus excluding direct sales to industrial users and consumers of natural gas?

7. If controls are removed in the manner proposed by the Administration, or in any other manner, will prices rise or fall? By how much? Why?

8. If prices fall, how much will production fall?

9. If prices rise, how much will production rise?

10. Can you explain specifically and in detail why prices are not falling now?

11. Giving a broad interpretation to the Natural Gas Act and the Natural Gas Policy Act, what authority might the FERC have to remove barriers to the fall prices? Could its authority under Section 601(c) of the NGPA, concerning limitations on passthroughs in the event of "fraud, abuse, or similar grounds", be interpreted to provide such authority? Could its rule-making authority under Section 501(a) of the NGPA be used to rectify the situation?

QUESTIONS FOR MR. BEATTY

1. Your statement shows your concern about the implementation of Sec. 101 of S. 615. How would you alter the provision?

2. How would you feel about the gas cap and passthrough provisions being applied to the intrastate market?

3. I'm not sure what you're saying about the market-out, contract, and access provisions in S. 615.

    a. Do you support them?

    b. If not, why not?

    c. Do you support any amendments to any of those provisions?

QUESTIONS FOR MR. BRYAN

1. Does CIBO support continuation of price control authority over intrastate sales in the producing states (Sec. 603(a) of the NGPA)? If so, how does that square with your support of free market pricing for natural gas?

2. You speak of CIBO's objectives "for achieving a gas market free of supply and demand constraints". Is CIBO in favor of the complete deregulation of the gas market, including the total deregulation of interstate and intrastate pipelines and distribution companies?

3. If Title V of S. 615 were enacted, what of any significance would be left of the Fuel Use Act?

4. Congress has had a long history of involvement in efforts to encourage the use of coal in both industrial and utility applications. If Title V were enacted, what remaining policies would be on the books to encourage the use of coal?

5. Could you please provide a detailed explanation of the manner in which incremental pricing actually affects the day-to-day operation of rates paid by customers of an interstate pipeline? Please be as specific as possible.

6. As a practical matter, are the incremental pricing requirements affecting industrial use of natural gas in today's market? Or are individual pipeline rate designs, off-system sales policies, state utility commission decisions, and the like actually more relevant than is incremental pricing in today's environment?

QUESTIONS FOR MR. McNAMARA

1. Do you support Sec. 101? I'm not sure from your description.

2. What do you project will happen to PGA's after 1/1/86 when Sec. 101 expires?

3. You mention an "omission" from the bill on page 5 of your statement; S. 615 does not cover imports. What would you advocate with respect to imports?

4. You point out on page 7 of your statement that wellhead price increases from natural gas accounted for only 4% of recent consumer price increases. What kind of price protection does the bill provide if the PGA mechanism covers only 4% of price increases?

5. Your statement says on page 8 that, "Come January, 1986, any party to a contract, existing or new or renegotiated, must live with it. May I infer that you believe the market-out provision is intended to apply to all contracts, and not just those covering first sales or sales for resale?

6. You refer to "technical drafting errors or perceived errors in the bill". Would you please provide the Committee with a list of those, which is as complete as you can, so that we may clear up any questions about those "errors"?

QUESTIONS FOR MR. ELAM

1. On page 7 of your statement, you support inserting "market-out rights in all existing contracts, including contracts for imported gas." Do you agree with Secretary Hodel's stated intent for the market-out provision -- that is, it should cover all contracts, and not just "first sale" or sale for resale contracts?

2. You support mandatory filing of all contracts with the FERC, and making them available for public inspection. Would you support some sort of public notice requirement if either party markets-out of a contract, so that gas purchasers would know what gas is available?

3. Do you believe that the producing states should be able to control prices for intrastate sales in their states, as they now can under Sec. 602(a) of the NGPA? If so, how does retention of that price control authority square with your opposition to price controls generally and with your desire to create a "free market" for natural gas.

4. Do you believe that either party should be able to invoke with market-out provision simply at will? Or should standards and criteria be provided for when a party may do so?

5. On page 14 of your statement, you say that S. 615 repeals the Powerplant and Industrial Fuel Use Act. Actually, it repeals only certain provisions of PIFUA. Do you advocate complete repeal, or the approach taken in S. 615?

6. Section 403 of S. 615 makes the contract carrier authorization applicable only in a limited set of circumstances. In short, the pipeline previously carrying the gas would have to carry it for a new purchaser. Would you support expanding this requirement so that any pipeline, interstate or intrastate, could be required to carry gas for any other purchaser?

Howard

SENATE COMMITTEE ON
ENERGY AND NATURAL RESOURCES
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CHEMICAL MANUFACTURERS ASSOCIATION
Response to Questions from the
Senate Committee on Energy and Natural Resources
concerning
Natural Gas Policy Hearing
held
March 9-12, 1983

Part I, Questions for Panel Two

1. As Senator Johnston requested, please indicate which of the bills pending before the Committee you support.

   We strongly support the basic concepts of S. 615, the Natural Gas Consumer Regulatory Reform Amendments of 1983.

   We strongly oppose legislative provisions which would roll back prices, extend NGPA controls, allow pipelines to unilaterally abrogate gas contracts, permit arbitrary revisions in existing contracts or permanently increase FERC control on PGAs. For example, we oppose S. 60 and S. 689.

2. As Senator Johnson requested, please provide the Committee with specific statutory language for any amendments you would like to see adopted if the Committee were to use S. 615 as mark-up vehicle for natural gas legislation.

   We strongly support S. 615 and do not have specific amendments to offer at this time.

3. If the amendments you support are not adopted, and if you had to vote up or down on S. 615, would you support it or would you support a continuation of the existing law?

   S. 615 is far preferable to continuation of the present law. However, we recognize that some changes may be desirable.

4. How much of each of your group's purchases fall into the direct sale category? Of those direct sales, which customers and which volumes are served by interstate pipelines? Which are served by intrastate pipelines?

   The information requested is not compiled by our Association.

5. Do you support the Administration bill's "market-out" provision?

   We generally support the "market-out" provision as part of the overall bill under the assumption that encouragement of mutual renegotiation prior to the "market-out" date will provide a voluntary solution to the pipeline contracts problem and minimize the problems of abrogating contracts on 1/1/85. As we have indicated in our testimony, rigid and time-consuming implementation of Section 101 could dampen the renegotiation process and cause undue shock on the 1/1/85 "market-out". Additionally, some CMA member companies have evaluated the possible impacts of the abrogation of direct sales contracts negotiated at arms length with producers before the NGPA and have serious reservations on abrogation of that type of contract.

6. As a technical matter, do you believe Section 303, as drafted, applies to all contracts, as Secretary Hodel said it does, or only to first sales, thus excluding dirct sales to industrial users and consumers of natural gas?

   The bill as drafted and supporting analysis seem to be ambiguous in the intent of the "market-out" clause in existing contracts. The technical intent could be that the provisions only apply to pipelines.

7. If controls are removed in the manner proposed by the Administration, or in any other manner, will prices rise or fall? By how much? Why?

   We firmly believe that S. 615 will result in lower prices than those under the NGPA. The NGPA contains serious flaws that have resulted in unnecessarily high prices for consumers. These flaws include:

   (a) discouraging production of low cost gas while encouraging production of high cost gas to the detriment of all consumers;

   (b) failing to provide pipelines with the incentive to negotiate with producers for the lowest cost supplies; and

   (c) failing to allow natural gas prices to respond to the market forces of declining demand by arbitrarily and continuously increasing wellhead price ceilings.

   In most areas of the country the interfuel market clearing price of No. 6 fuel oil has already been reached for natural gas. Furthermore, the cost of fuel oil is more likely to be lower rather than higher. The DOE conclusion that free market prices will be below NGPA prices is realistic. Studies predicting higher prices under S. 615 are based on unrealistically high crude oil prices and unrealistic interfuel competition (No. 2 fuel oil instead of No. 6 fuel oil) and are without merit.

8 & If prices fall, how much will production fall?
9 If prices rise, how much will production rise?

We are vitally dependent on natural gas and we have carefully considered the alternatives. We find that the gas market is now demand limited by interfuel competition from No. 6 fuel oil. Under S. 615 increased demand will result from lower free market prices and therefore, encourage increased production. The increased production will not come from high cost gas production which has been encouraged by NGPA but from more moderate cost categories whose production has been discouraged by the NGPA.

Free market experience has shown that market stability and predictability are more important to expansion than artificial government incentives or disincentives. Therefore, we expect a free gas market will give gas producers and their investors more confidence to expand production than legislative and regulatory provisions which cannot duplicate the free market.

10. Can you explain specifically and in detail why prices are not falling now?

The NGPA improperly assumed that the nation was soon to run out of low and moderate cost gas. Consequently, it inappropriately distorted producer incentives in favor of high cost gas and discouraged further development of low cost gas. Pipelines inappropriately assumed that users would buy gas at any price and consequently, entered into imprudent contracts for expensive new gas supplies with extremely high take-or-pay provisions (since price was "set" by the NGPA, pipelines would only negotiate with nonprice contract provisions like take-or-pay provisions) Furthermore, few predicted the current decline of world crude oil prices. All of this has resulted in rapidly increasing natural gas prices that have now exceeded No. 6 fuel oil parity. Pipelines are now experiencing load loss that they inexplicably thought would not occur and find themselves burdened with high cost, high take-or-pay contracts that keep natural gas prices artificially high for all consumers. The NGPA price categories compound the problem by continuing to encourage producers to develop high cost supplies rather than low cost supplies.

Certain prices under NGPA are responding to market conditions under very limited circumstances to result in lower prices. This is principally in the high cost, deep gas categories whose prices have been inflated by the existence of the low cost, old gas cushion.

11. Giving a broad interpretation to the Natural Gas Act and the Natural Gas Policy Act, what authority might the FERC have to remove barriers to the fall prices? Could its authority under Section 601(c) of the NGPA, concerning limitations on passthroughs in the event of "fraud, abuse, or similar grounds", be interpreted to provide such authority? Could its rulemaking authority under Section 501(a) of the NGPA be used to rectify the situation?

    FERC has only limited authority to impose new provisions or invalidate express provisions in existing contracts. Therefore, the type of FERC activity envisioned in this question would require congressional action.

Part II, Questions for Mr. Beatty

1. Your statement shows your concern about the implementation of Section 101 of S. 615. How would you alter the provision?

    As we understand S. 615, it requires new standards and hearings that cannot be implemented in a timely manner. Furthermore, the procedure defined in the bill could set an absolute ceiling on pricing by preventing timely passthrough of prudently incurred just and reasonable cost increases. To prevent this, legislation should specify a time limit for FERC to reach a decision under established standards and hearing procedures. If FERC fails to reach a decision in such a time frame, passthroughs should then be allowed, subject to refunding.

2. How would you feel about the gas cap and passthrough provisions being applied to the intrastate market?

    We believe that the "gas cap" should be as close to the free market level as possible and therefore, believe that all new prices should be included in the "gas cap" determinations. Since intrastate prices are already controlled under NGPA, it does not represent a further extension of federal regulations to the intrastate market. However, extending passthrough provisions to intrastate gas is an unneeded and unwarranted extension of federal authority which does not enhance the free market nature of transition regulations.

3. I'm not sure what you're saying about the "market-out", contract, and access provisions in S. 615. Do you support them? If not, why not? Do you support any amendments to any of those provisions?

   Our answer to the "market-out", contract provisions is contained in Question 5, above.

   Reasonable access by all classes of purchasers to new and roll over gas as specified in S. 615 is essential to facilitate supply/ mand balancing by market forces. This favorable feature of S. 615 would be meaningless unless authorized gas purchases could be equitably transported from purchaser to end user without a restrictive overburden of federal regulations or undue financial penalty to the pipeline or purchaser. We fully endorse the principles for easing transportation of gas in either isolated or commingled form through pipelines acting as contract carriers whether or not the gas is subject to FERC jurisdiction. It makes sense to treat all natural gas as a single fungible commodity.

Part III, Additional Questions from Various Republican Members of the Committee

1. Please provide the Committee with the specific legislative language necessary to implement those changes to the Administration's bill, S. 615, that you identified in your oral and written testimony as being necessary. Also, please provide the Committee a justification for each of your recommended changes.

   We do not have specific legislative language at this time.

2. Please provide the Committee with your estimate of the amount by which gas prices would increase or decrease, both over the short-run and over the long-run, if S. 615 is enacted.

   Please refer to our response to questions 7 and 10, Part I.

3. Please provide the Committee with your estimate of the amount by which gas supplies and gas reserves would increase or decrease, both over the short-run and over the long-run, if S. 615 is enacted.

   Please refer to our response to questions 8 and 9, Part I.

4. Please provide the Committee with your estimate of the level of the gas cap if S. 615 were enacted today and the amount by which the cap would reduce average purchased gas costs.

We firmly believe that natural gas prices are now effectively capped by interfuel competition from No. 6 fuel oil and will not rise above that level. We further believe that the price of gas will decline in a free market relative to the average price under the NGPA. This decline will result from new supplies of low cost gas as producers are encouraged to bring this gas to the market.

5. Some witnesses appearing before the Committee have suggested that enactment of S. 615 would bring about chaos in the gas market. Please provide the Committee with your assessment of the prospect of that occurring.

S. 615 will bring order to the market; not chaos.

Howard

cibo
COUNCIL OF INDUSTRIAL BOILER OWNERS

SENATE COMMITTEE ON
ENERGY AND NATURAL RESOURCES
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PRESIDENT
William B. Marx

March 23, 1983

Howard Useem
Professional Staff Member
Senate Energy Committee
306 Dirksen Senate Office
Washington, D. C. 20510

Dear Howard:

Enclosed are the responses to the Committee questions asked at the March 10 hearing.

Sincerely,

Bill
William B. Marx

Enclosure

11222 Silverleaf Drive, Fairfax Station, Virginia 22039 • (703) 250-9042

CIBO ANSWERS TO PANEL TWO QUESTIONS

1. Q. As Senator Johnston requested, please indicate which of the bills pending before the Committee you support.

   A. We support the basic concepts of S. 615, the Administration's program. We do not support any bills introduced which would roll back prices, extend NGPA controls, unilaterally abrogate gas contracts or further bias FERC conrols toward non-market gas pricing.

2. Q. As Senator Johnston requested, please provide the Committee with specific statutory language for any amendments you would like to see adopted if the Committee were to use S. 615 as mark-up vehicle for natural gas legislation.

   A. Attached is language which would extend to industrial users the benefits currently available to utility facilities wishing to convert to coal.

3. Q. If the amendments you support are not adopted, and if you had to vote up or down on S.615, would you support it or would you support a continuation of the existing law?

   A. While some changes may be desirable, S.615 is preferable to continuation of the present law and vastly superior to the re-regulation bills proposed by Senators Heinz, Danforth, Eagleton and Kassebaum.

4. Q. How much of each of your groups' purchases fall into the direct sales category? Of those direct sales, which customers and which volumes are served by interstate pipelines? Which are served by intrastate pipelines?

   A. CIBO does not collect this information from our member companies.

5. Q. Do you support the Administration bill's "market-out" provision?

   A. We support a "market-out" concept as part of the overall bill in order to encourage contract renegotiation and provide a voluntary solution to the pipeline contracts problem. We would, however, urge that such market-out be clarified to cover only pipeline contracts, that is contracts involving first sales for resale.

6. Q. As a technical matter, do you believe Section 303, as drafted, applies to all contracts, as Secretary Hodel said it does, or only to first sales, thus excluding direct sales to industrial users and consumers of natural gas?

A. While the bill does not cover all contracts, it is an amendment to NGPA. Under NGPA Section 2(21), a first sale may include, among other things, a sale by a producer to an end-user, as well as a sale by an interstate pipeline to an end-user where the sale is not attributable to the pipeline's own (or affiliated) production. As indicated in our answer to Question 5 above, Section 303 should not apply to such sales.

7. Q. If controls are removed in the manner proposed by the Administration or in any other manner, will prices rise or fall? By how much? Why?

A. We believe that pirces under complete deregulation will be lower than prices under NGPA. We cannot quantify how much but we feel that the DOE analysis is a reasonable and credible assessment. Analysis which predict higher prices under deregulation are incorrect because they underestimate the effects of interfuel competition and assume unrealistically high oil prices. There is a significant amount of industrial and utility load which is being lost as natural gas exceeds number 6 oil prices.

8. Q. If prices fall, how much will production fall? If prices rise, how much will production rise?

A. CIBO does not have any independent forecasts of production responses.

9. Q. Giving a broad interpretation to the Natural Gas Act and the Natural Gas Policy Act, what authority might the FERC have to remove barriers to cause the fall of prices? Could its authority under Section 601(c) of the NGPA, concerning limitations on passthroughs in the event of "fraud, abuse, or similar grounds," be interpreted to provide such authority? Could its rule-making authority under Section 501(a) of the NGPA be used to rectify the situation?

A. Only Congressional action can give FERC authority of the type indicated.

QUESTIONS FOR MR. BRYAN

1. Q. Does CIBO support continuation of price control authority over intrastate sales in the producing states (Sec. 603(a) of the NGPA)? If so, how does that square with your support of free market pricing for natural gas?

   A. CIBO supports total phased deregulation of all wellhead gas prices and freedome from regulatory supply or demand constraints. Sec. 603(a) provides that state authority is not usurped. We would hope that the state agency would recognize that it is in neither the state's interest nor the consumers' interest to use that authority to artificially hold gas prices below their true market value or divert gas from its most economic use.

2. Q. You speak of CIBO's objectives "for achieving a gas market free of supply and demand constraints." Is CIBO in favor of the complete deregulation of the gas market, including the total deregulation of interstate and intrastate pipelines and distribution companies?

   A. We are in favor of deregulation that will allow market signals to be transmitted from the gas purchaser to the producer while allowing transporters and distributors to be responsible buyers and innovative marketers. This can be accomplished if the equitable access and transportation features of S.615 are adopted. We are not prepared at this time to address the impact of changing regulations of state public service or utilities commissions.

3. Q. If Title V of S.615 were enacted, what if any significance would be left to the Fuel Use Act?

   A. We do not believe that the Fuel Use Act was ever able to accomplish its originally stated objectives and retain any significance or relevance in today's market. Title V of S.615 would only decently inter the inoperative remains of the Fuel Use Act. The bill would allow a continuation of the authoity to issue prohibition orders at the request of an electric powerplant owner; perhaps it should also continue such an authority to cover owners of industrial steam generation facilities. (MFBI's).

4. Q. Congress has had a long history of involvement in efforts to encourage the use of coal in both industrial and utility applications. If Title V were enacted, what remaining policies would be on the books to encourage the use of coal?

A. CIBO has always believed that the ultimate potential for coal use can best be achieved by allowing true interfuel competition in a free energy market. There are more statutes on the book that discourage coal use absolutely than any that were enacted to encourage coal use. Environmental requirements, such as the arbitrary percent reduction of emitted sulfur dioxide, as applied to industrial boilers, wihtout consideration of ambient air quality, cancel out any free market or statutory coal use incentives. Let the market work and coal use incentives will be unnecessary.

5. Q. Could you please provide a detailed explanation of the manner in which incremental pricing actually affects the day-to-day operation of rates paid by customers of an interstate pipeline?

A. During approximately the first two years of the program (1980 and 1981) the gap between natural gas prices and residual fuel oil prices was often large, and the surcharges paid by industrial consumers ran into hundreds of millions of dollars. Then, however, as the residual fuel oil market softened, and as the NGPA continued inexorably to increase gas prices, the price of residual oil fell below the base price of gas in many, and then most, areas.

Now, the base price of gas is higher than the price of competing residual fuel oil in virtually every area of the country. Hence, few, if any, incremental pricing surcharges are currently being paid.

Incremental pricing, however, is far from a dead program. Exposure to incremental pricing surcharges will reappear the moment that residual fuel oil prices rise above gas prices in a given area -- either because of economic recovery, an oil emergency, or other precipitate events to which energy markets appear so prone.

The need to include incremental pricing repeal in gas reform legislation is further fueled by the current risk that the incremental pricing program could -- inadvertently -- be broadly expanded. In 1980, the House of Representatives exercised its veto authority under NGPA Section 202(c) and overwhelmingly rejected (369-34) any expansion of the incremental pricing program. Subsequently, the U.S. Court of Appeals for the District of Columbia Circuit found that the veto provision was unconstitutional. Consumer Energy Council v. FERC, 673 F.2d 425 (D.C. Cir. 1982).

In the event the Supreme Court should agree with lower courts that the one-House veto is unconstitutional, the broad Phase II incremental pricing program could potentially be put into effect. If for no other reason, then, NGPA Title II should be repealed in order to avoid the potentially enormous financial impact which such a result would have on the Nation's industry.

6. Q. As a practical matter, are the incremental pricing requirements affecting industrial use of natural gas in today's market? Or are individual pipeline rate designs, off-system sales policies, state utility commission decisions, and the like actually more relevant than is incremental pricing in today's environment?

A. As noted in response to the previous question, the incremental pricing program is not currently having substantial dollar impact on industrial gas rates. Industrial users are concerned about regulatory "quick fixes" currently being explored -- such as "incentive" discount rates, special rates for favored industries, and off-system sales policies -- which attempt to address the symptoms of the gas market's ills but in fact only exacerbate them. While pipelines' and distributors' cost allocation techniques, rate designs, purchasing practices, and overall prudent operation in the public interest will remain of important concern to gas consumers. Enactment of legislation along the lines of S.615 will allow those matters to be addressed by the gas industry, by regulators, and by consumers in the more rational and more stable environment.

Howard

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Official Committee File

SENATE COMMITTEE ON
ENERGY AND NATURAL RESOURCES
RECEIVED
MAR 23 1983
WASHINGTON, D.C. 20510

March 23, 1983

The Honorable James A. McClure
United States Senate
3121 Dirksen Senate Office Building
Washington, D.C. 20510

Dear Senator McClure:

Attached are responses to questions from the Committee submitted to us since our appearance at the hearing March 10.

We hope you and your staff will feel free to contact us if we can be of further assistance.

Yours truly,

Patrick H. McNamara

Patrick H. McNamara

Attachments

RESPONSES TO QUESTIONS FOR MR. MCNAMARA

1. Do you support Sec. 101? I'm not sure from your description.

   As I stated in my testimony, we would suggest a thorough reconsideration of the section referred to. We are concerned that it may be too rigid. Suggesting the possibility of improvements should not necessarily be construed as opposition, in this case particularly.

2. What do you project will happen to PGA's after 1/1/86 when Sec. 101 expires?

   If the EIA 1/ and the GAO 2/ are correct, and we tend to believe that they are, the rapid escalation in the average price of gas through the PGA mechanism is driven by the biases in the NGPA itself and its many categories of gas. In that case, we would expect that the field markets for natural gas would be brought into a reasonable balance by 1/1/86 and thus, the PGA's would not reflect the pattern of conduct now observed. We would expect that the price of gas, as reflected in the PGA's, would trend upward and downward in response to supply and demand factors, but at levels below what the NGPA will cause.

3. You mention an "omission" from the bill on page 5 of your statement; S. 615 does not cover imports. What would you advocate with respect to imports?

   With respect to imports, we believe that this issue should be thoroughly considered. It does not do the consumer any good, for example, to reduce the take-or-pay level on cheaper domestic gas in order to make markets for high cost imports.

1/ Energy Information Administration, "An Analysis of Post-NGPA Interstate Pipeline Wellhead Purchases," Vol. 3 (September 1982).

2/ General Accounting Office, "Natural Gas Prices: A Preliminary Analysis, " GAO/RCED-83-76, p. 11 (1982).

4. You point out on page 7 of your statement that wellhead price increases from natural gas accounted for only 4% of recent consumer price increases. What kind of price protection does the bill provide if the PGA mechanism covers only 4% of price increases?

What I was referring to on page 7 of my testimony was the finding of the Energy Information Administration 3/ which related to wellhead price increases for regulated gas in the "old," and in the "new" categories. The average, as EIA and GAO point out, is driven by price times volume. Price controls only affect the price. The PGA limitation affects both price and volume in the mix of the various supplies of gas. The PGA mechanism thus covers both price and volume, and that is the answer to your question. For further amplification, please see the testimony of Richard Perry presented to this Committee on December 13, 1982.

5. Your statement says on page 8 that, "Come January, 1986, any party to a contract, existing or new or renegotiated, must live with it. May I infer that you believe the market-out provision is intended to apply to all contracts, and not just those covering first sales or sales for resale?

On page 8 of my testimony, I was discussing wellhead sales of natural gas. I believe that the market-out provision in S. 615 presently applies to all first sales, as that term is defined in the NGPA.

6. You refer to "technical drafting errors or perceived errors in the bill." Would you please provide the Committee with a list of those, which is as complete as you can, so that we may clear up any questions about those "errors?"

We will comply with this request as soon as possible.

3/ Energy Information Administration, "An Analysis of Post-NGPA Interstate Pipeline Wellhead Purchases," Vol. 3, (September 1982), p. 37.

RESPONSES TO QUESTIONS TO PANEL TWO

1. As Senator Johnston requested, please indicate which of the bills pending before the Committee you support.

   S. 615.

2. As Senator Johnston requested, please provide the Committee with specific statutory language for any amendments you would like to see adopted if the Committee were to use S. 615 as mark-up vehicle for natural gas legislation.

   We will comply with this request as soon as possible.

3. If the amendments you support are not adopted, and if you had to vote up or down on S. 615, would you support it or would you support a continuation of the existing law?

   I would recommend supporting S. 615.

4. How much of your groups' purchases fall into the direct sale category? Of those direct sales, which customers and which volumes are served by interstate pipelines? Which are served by intrastate pipelines?

   I do not have this information, but there would be some, I believe, in both types of direct sales and on both classifications of pipelines.

5. Do you support the Administration bill's "market-out" provision?

   Yes.

6. As a technical matter, do you believe Sec. 303, as drafted, applies to all contracts, as Secretary Hodel said it does, or only to first sales, thus excluding direct sales to industrial users and consumers of natural gas?

6. (cond't)

On information and belief, Section 303 applies to all "first sales" of natural gas as defined by the NGPA and thus would include first sales to industrial users and ultimate consumers of natural gas.

7. If controls are removed in the manner proposed by the Administration, or in any other manner, will prices rise or fall? By how much? Why?

I believe that if price, contract and allocation controls are removed in the manner proposed by the Administration or in a consistent manner, prices will probably fall. As I explained in my testimony, I would expect that prices would fluctuate as supply and demand balances fluctuated. Thus, it is not possible to predict precisely how much the price would fall at any given time, but the level should be below that anticipated under the NGPA.

8. If prices fall, how much will production fall?

Again, as in Question 7, I do not believe it possible to give a precise number.

9. If prices rise, how much will production rise?

The answer is the same as to Question 8.

10. Can you explain specifically and in detail why prices are not falling now?

In responding to this question, please keep in mind that prices are generally set at as many as three levels: at the domestic wellhead level, at the pipeline level, both on the purchasing end and on the selling end, and at the distribution end. Assuming that your question applies to the wellhead level, there is evidence that the price of gas is falling through the exercise of market-out clauses in some contracts, through lower prices in new contracts, and perhaps in other instances. The EIA study, 1/ referenced in my testimony, gives some reasons why the prices are not falling at the pipeline level. The question, as applied to the distributor level, has not been given sufficient scrutiny.

1/ Energy Information Administration, "An Analysis of Post-NGPA Interstate Pipeline Wellhead Purchases," Vol. 3 (September 1982).

11. Giving a broad interpretation to the Natural Gas Act and the Natural Gas Policy Act, what authority might the FERC have to remove barriers to the fall of prices? Could its authority under Secton 601(c) of the NGPA, concerning limitations on passthroughs in the event of "fraud, abuse, or similar grounds," be interpreted to provide such authority? Could its rule-making authority under Section 501(a) of the NGPA be used to rectify the situation?

While I would defer to others for legal analysis, I am under the impression that the FERC does not have the powers implied by the question.

RESPONSES TO QUESTIONS FROM VARIOUS REPUBLICAN MEMBERS OF THE COMMITTEE

1. Please provide the Committee with the specific legislative language necessary to implement those changes to the Administration's bill, S. 615, that you identified in your oral and written testimony as being necessary. Also please provide the Committee a justification for each of your recommended changes.

   We will comply with this request as soon as possible.

2. Please provide the Committee with your estimate of the amount by which gas prices would increase or decrease, both over the short-run and over the long-run if S. 615 is enacted.

   Please see response to Questions 2 and 7 above.

3. Please provide the Committee with your estimate of the amount by which gas supplies and gas reserves would increase or decrease, both over the short-run and over the long-run, if S. 615 is enacted.

   Please see response to Question 9 above.

4. Please provide the Committee with your estimate of the level of the gas cap if S. 615 were enacted today and the amount by which the cap would reduce average purchased gas costs.

   Please see responses to Questions 2 and 7 above.

5. Some witnesses appearing before the Committee have suggested that enactment of S. 615 would bring about chaos in the gas market. Please provide the Committee with your assessment of the prospect of that occurring.

PEG has stated in testimony before this Committee and elsewhere its fear that chaos in gas markets will occur if the NGPA is allowed to run its course and even worse consequences will occur if there is a return of total price, contract, and allocation controls. As discussed in my testimony at pages 6-7 the gas cushion created by the NGPA and its inequitable distribution from region to region and company to company threaten severe problems unless corrections are made by the Congress. In PEG's view, S. 615 presents a comprehensive and balanced solution to these market problems and merits favorable consideration for this reason.

PGC Responses to Questions of the Senate Committee on Energy and Natural Resources

I. Responses to Questions for Panel Two

Q1. As Senator Johnston requested, please indicate which of the bills pending before the Committee you support.

A1. In contrast with the other pending proposals, PGC views S. 615 as the basis for a sound compromise which balances the removal of harmful impediments to the operation of the gas market with appropriate consumer protections during the transition period. PGC opposes as unwise and shortsighted any bill that proposes to freeze prices, extend price controls, or impose other quick fixes which fail to address comprehensively the complex problems confronting the natural gas industry.

Q2. As Senator Johnston requested, please provide the Committee with specific statutory language for any amendments you would like to see adopted if the Committee were to use S. 615 as markup vehicle for natural gas legislation.

A2. PGC supports the use of S. 615 as a mark-up vehicle for natural gas legislation. PGC believes, however, that certain modifications should be made to the bill in order to provide for even more effective realization of the goal of restoring rationality and stability to the gas market. In the spirit, then, of helping the bill to better achieve its intended purposes, PGC would suggest the following amendments:

- Amend Section 101 to allow pipelines to collect charges subject to refund and delete the new special proceeding of the nature created by Section 603(b) to consider questions relating to recovery of additional gas purchase costs. We are fearful that such an additional layer of procedure will create administrative difficulties for the FERC and will result in substantial delay in the resolution of pipeline gas purchasing issues, thereby creating additional disincentives for the pipelines to participate in the renegotiation process. As an alternative, we would propose that the existing PGA process be utilized to consider questions of pipeline recovery of costs above the allowable rate established under Section 603. This could be accomplished through formulation by FERC within 60 days after date of enactment of specific generic standards to be applied to pipeline requests to recover costs in excess of their allowable PGA rate. Such regulatory standards should be formulated in such a fashion as to permit the recovery of such additional gas costs to the extent those costs are needed to render adequate service at lowest reasonable rates to existing customers. This could allow, for example, pipelines with large cushions, who might otherwise be potentially disadvantaged by the inflexible provisions of Section 603, to replace their depleting Section 104 gas supplies with new gas, but, at the same time, not inhibit their participation in the renegotiation process.

If the Committee strongly feels that a special proceeding is necessary as an alternative to utilization of the normal PGA procedure, we would strongly urge that a truly expedited proceeding be established, requiring the Commission to complete its consideration of evidence and issue appropriate orders within strict deadlines.

- Amend Section 303 to make the market-out rights available as of the date of enactment and eliminate the gas cap; to limit the section's applicability to sale-for-resale contracts and to provide pipeline purchasers with rights of first refusal in those cases in which the contract seller is the one who exercised market-out rights.

- Amend the bill to include a requirement that all contracts for imported gas be renegotiated within a specified (e.g., 9 month) time frame.
- Amend Section 503 to make the repeal of incremental pricing effective immediately and to bar any retroactive collection of incremental pricing surcharges for any period prior to the date of enactment.
- Amend Section 403 to eliminate remaining obstacles to "self-help" transactions.

Specific statutory language for these amendments will be submitted by PGC to the Committee shortly.

Q3. If the amendments you support are not adopted, and if you had to vote up or down on S. 615, would you support it or would you support a continuation of the existing law?

A3. While not wishing to minimize the desirability of the amendments suggested in response to Question 2 above, the majority of PGC's members would strongly prefer enactment of S. 615 to continuation of existing law.

Q4. How much of each of your groups' purchases fall into the direct sale category? Of those direct sales, which customers and which volumes are served by interstate pipelines? Which are served by intrastate pipelines?

A4. PGC does not have data readily available to it with respect to either the dollar percentage or volume percentage of its members' total gas purchases falling into the direct sale category. In general however, PGC can state only that less than 4% of its member companies' plants purchase gas directly from interstate pipelines and that less than 3% of the plants purchase gas directly from intrastate pipelines.

Q5. Do you support the Administration bill's "market-out" provision?

A5. PGC supports the Administration bill's "market-out" provision, but we suggest that the following revisions would allow the bill to achieve its important goals more effectively:

(a) To provide supply stability to their markets, pipeline purchasers should be given rights of first refusal in cases in which a seller opts out in favor of another buyer. However, to protect independent producers from potential bad faith bargaining tactics, a pipeline purchaser should not be given a right of first refusal in cases in which it was the one to opt out of the contract.

(b) The market-out provision should apply only to contracts for the first sale of natural gas for resale.

(c) The market-out provision should be inserted into contracts at the time of enactment, not delayed until January 1, 1985.

Q6. As a technical matter, do you believe Sec. 303, as drafted, applies to all contracts, as Secretary Hodel said it does, or only to first sales, thus excluding direct sales to industrial users and consumers of natural gas?

A6. By its terms, Section 303 of S. 615, as presently drafted, applies to any contract "for the first sale of natural gas which was in effect on the date of enactment of the [bill] and which contract was not thereafter amended . . . ." The term "first sale" is defined in Section 2(21) of the NGPA. Subparagraph (A) of that provision defines the specific types of sales to which the term applies, and Subparagraph (B) excludes certain specific sales from the definition. Thus, insofar as Section 303 of the Administration's bill, as presently drafted, confers market-out rights only on parties to "first sale" contracts, that provision does not apply to all contracts; it is by definition inapplicable to contracts which do not fall within the NGPA's specific definition of "first sale".

Notwithstanding this conclusion, the Committee's question appears to reflect a misperception as to the scope of "first sales" under the NGPA. The question seems to posit that, if Section 303 applies only to "first sales," then it does not apply to "direct sales to industrial users and consumers of natural gas." To the contrary, however, first sales and direct sales are not mutually exclusive. Under NGPA Section 2(21), a first sale may include, among other things, a sale by a producer to an end-user, as well as a sale by an interstate pipeline to an end-user if the sale is attributable to the pipeline's own (or affiliated) production. Such being the case, PGC believes that Section 303 of S. 615 should be modified to apply only to first sales which are also sales-for-resale and thus exclude all direct sales to gas consumers. As noted in response to Question 2 above, PGC will submit proposed statutory language to effect this suggested revision.

Q7. If controls are removed in the manner proposed by the Administration, or in any other manner, will prices rise or fall? By how much? Why?

A7. If natural gas prices were fully decontrolled, the contract problem solved, and access to natural gas broadened, gas prices would be determined by free market forces. Under current market conditions -- abundant supply, slack demand, and falling oil prices -- it seems indisputable that gas prices would drop sharply. PGC has no independent forecasts, however, of the magnitude of that price drop under different decontrol scenarios.

A more comprehensive discussion of the reasons why full decontrol must be a centerpiece of gas reform legislation was presented in PGC's recent testimony before the Joint Economic Committee. The relevant portion of that testimony is attached as Appendix "A".

Q8. If prices fall, how much will production fall?

Q9. If prices rise, how much will production rise?

A8., 9. PGC has not developed any independent forecasts of gas production responses to varying price levels.

Q10. Can you explain specifically and in detail why prices are not falling now?

A10. Although oil prices are currently falling, average natural gas prices continue to rise. This anomolous situation is due largely to a combination of circumstances often referred to collectively as the "contract problem." Specifically, most post-1977 gas purchase contracts contain one or more of the following restrictive provisions: (1) indefinite pricing clauses that link deregulated natural gas prices to the highest gas prices being paid in a defined area or to the price of other fuels; (2) take-or-pay clauses that require pipelines to pay for 85%-90% of tendered supplies even if there is no resale market; and (3) extreme "definite" pricing clauses that begin from a high floor and escalate according to inflation or to fixed percentages. Take-or-pay clauses are currently contributing to higher prices by forcing pipelines to buy expensive gas and cut back on purchases from much cheaper gas sources. As gas prices have risen, demand for gas has slackened, resulting in further price elevations as remaining customers pick up larger shares of the gas companies' fixed costs.

In substantial measure, then, these contract provisions are depriving the gas industry of the flexibility needed to respond to falling demand for gas, a temporary supply surplus, the availability of cheaper alternate fuels, and the vicious cycle of load loss, higher prices, and consequent additional load loss. Thus, even in the face of conditions which, in a truly free market, would effect downward pressure on gas prices, these problem contract provisions defy market conditions and continue to ratchet prices upward. This contract inflexibility is even more destructive when it permits foreign gas suppliers to continue to sell their gas in the U.S. at prices which are 150-250% of free market prices. And, to make matters still worse, when several categories of gas are deregulated in 1985 under the NGPA, these same contract provisions will work to drive natural gas prices far higher.

While the deregulated portion of the gas market has begun to "work" to bring inflated Section 107 prices down, this is only a small portion of the market. The market as a whole cannot respond meaningfully to bring down prices in the face of excess supply and reduced demand until the distortions caused by the old gas "cushion" and the contract problem are eliminated.

Q11. Giving a broad interpretation to the Natural Gas Act and the Natural Gas Policy Act, what authority might the FERC have to remove barriers to the fall prices? Could its authority under Section 601(c) of the NGPA, concerning limitations on pass-throughs in the event of "fraud, abuse, or similar grounds", be interpreted to provide such authority? Could its rulemaking authority under Section 501(a) of the NGPA be used to rectify the situation?

A11. PGC believes that the Federal Energy Regulatory Commission does possess substantial authority, under both the Natural Gas Act and the Natural Gas Policy Act, to take action to remove some of the obstacles preventing gas prices from falling, as well as to take certain actions to address other current and potential future problems in the gas market. A detailed discussion of FERC's authority to review pipeline gas purchasing practices, plus recommendations for actions which FERC should take whether or not gas legislation is enacted, was presented in response to follow-up questions to PGC's testimony before this Committee in December 1982. That discussion is attached as Appendix "B" hereto.

Nevertheless, PGC must emphasize that, while it believes that FERC possesses substantial authority to deal with problems in the gas market, it nevertheless believes that legislation is still necessary for at least two reasons:

- First, as reflected in the discussion set forth in Appendix B, there is disagreement even at FERC itself as to the extent of its authority. Therefore, even if FERC were to adopt some or all of PGC's suggestions for action, there would without doubt be challenges to such action, leading to prolonged uncertainty during the lengthy process of judicial review of the scope of FERC's statutory authority.

- Second, most of the recommendations PGC has made have prospective application only, whereas S. 615 would have broader effect -- for example, by encouraging renegotiation of existing contracts to resolve the contract problem.

II. Questions to and Responses from Mr. Elam

Q1. On page 7 of your statement, you support inserting "market-out rights in all existing contracts, including contracts for imported gas". Do you agree with Secretary Hodel's stated intent for the market-out provision -- that is, it should cover all contracts, and not just "first sale" or sale for resale contracts?

A1. PGC believes that Section 303 of S. 615 should apply to all sale-for-resale contracts, including those for imported gas. Not-for-resale contracts should not be covered by that provision. A fuller discussion of this point is set forth in the response to Question 5 of Part I, above.

Q2. You support mandatory filing of all contracts with the FERC, and making them available for public inspection. Would you support some sort of public notice requirement if either party markets-out of a contract, so that gas purchasers would know what gas is available?

A2. Yes. PGC sees no reason why there should not be some sort of public notice requirement when a party exercises its right to market-out of its contract.

Q3. Do you believe that the producing states should be able to control prices for intrastate sales in their states, as they not can under Sec. 602(a) of the NGPA? If so, how does retention of that price control authority square with your opposition to price controls generally and with your desire to create a "free market" for natural gas.

A3. PGC has no position at present on the question of state-imposed price controls. However, PGC's opposition to price controls is predicated upon the fact that the problem is at the federal and not the state level. The substantial disorder that exists in the natural gas market is caused by federal, not state controls.

Q4. Do you believe that either party should be able to invoke with market-out provisions simply at will? Or should standards and criteria be provided for when a party may do so?

A4. Yes. PGC believes that either party should be able to exercise its market-out rights at will. Such an approach best ensures that parties can renegotiate their contracts to meet current market conditions. However, as explained in response to Question 5, Part I, above, PGC believes that pipelines should have a right of first refusal in cases in which the producer opts out of the contract, but not in cases in which the pipeline itself opts out.

Q5. On page 14 of your statement, you say that S. 615 repeals the Powerplant and Industrial Fuel Use Act. Actually, it repeals only certain provisions of PIFUA. Do you advocate complete repeal, or the approach taken in S. 615?

A5. The portion of S. 615 dealing with the Fuel Use Act keeps in place provisions which allow existing utility facilities to obtain an order from DOE to require them to convert to coal. The receipt of such an order allows the facility to be treated as an existing facility for purposes of the Clean Air Act as opposed to new facilities. These provisions, which were added by the Omnibus Budget Reconcillation Act of 1981 are useful and should be retained and extended to apply to industrial users as well.

Q6. Section 403 of S. 615 makes the contract carrier authorization applicable only in a limited set of circumstances. In short, the pipeline previously carrying the gas would have to carry it for a new purchaser. Would you support expanding this requirement so that any pipeline, interstate or intrastate, could be required to carry gas for any other purchaser?

A6. In contrast with the limited transportation requirement of S. 615's market-out provision, Section 403 provides broadly that the Commission may order any interstate pipeline to carry gas under contract between producer and purchaser under certain conditions. PGC has no position on extension of Section 403's transportation requirements to intrastate pipelines.

QUESTIONS FROM VARIOUS REPUBLICAN MEMBERS OF THE COMMITTEE

1. Please provide the Committee with the specific legislative language necessary to implement those changes to the Administration's bill, S. 615, that you identified in your oral and written testimony as being necessary. Also please provide the Committee a justification for each of your recommended changes.

2. Please provide the Committee with your estimate of the amount by which gas prices would increase or decrease, both over the short-run and over the long-run if S. 615 is enacted.

3. Please provide the Committee with your estimate of the amount by which gas supplies and gas reserves would increase or decrease, both over the short-run and over the long-run, if S. 615 is enacted.

4. Please provide the Committee with your estimate of the level of the gas cap if S. 615 were enacted today and the amount by which the cap would reduce average purchased gas costs.

5. Some witnesses appearing before the Committee have suggested that enactment of S. 615 would bring about chaos in the gas market. Please provide the Committee with your assessment of the prospect of that occurring.

QUESTIONS FROM REPUBLICAN MEMBERS OF THE COMMITTEE

1. In the Natural Gas Supply Association's opinion, what impact would the various proposals currently pending before the Committee*/ have on:

   --residential, commercial and industrial gas prices?
   --short-term and long-term gas supplies?
   --the financial situation of producers, pipelines and gas distribution companies?

2. In NGSA's opinion, to what extent and on what matters does the Federal Energy Regulatory Commission have the statutory authority to take action to address current and potential future problems in the gas market? Please provide the Committee with a detailed legal analysis of the FERC's authority. What actions would you recommend that the FERC take?

3. The following statement appears on page 14 of NGSA's prepared testimony:

   > The deep-cushion pipeline will continue to have an advantage in bidding for uncommitted gas. In addition, it will have another advantage that did not exist under the NGPA. It would continue to have gas committed to its system without any obligation to purchase it. This gas may, in fact, be cheaper than uncommitted gas on which a shallow-cushion pipeline is bidding.

   Q. Would you please identify the gas that would be commited to the deep-cushion pipeline, and fully explain the facts and reasoning that support the statement contained in the paragraph.

4. If the Congress were to enact a law permitting pipelines to abrogate take-or-pay provisions in producer-pipeline contracts, but also permitting producers to sell to other purchasers the volumes of gas not taken as a result of the contract modifications, would the producers who could not sell those volumes be entitled to compensation for such lost sales, even though they retained the gas and were contractually free to sell it at a later date? If they are entitled to compensation, how would it be computed, and who would pay it?

Questions for Panel Three

1. Do you support any of the bills pending before the Committee on Energy and Natural Resources? If so, please indicate which one(s).

2. Please provide the Committee with specific statutory language for any amendments you would like to see adopted if the Committee were to use S. 615 as mark-up vehicle for natural gas legislation.

3. If the amendments you support are not adopted, and if you had to vote up or down on S. 615, would you support it or would you support a continuation of the existing law?

4. Do you believe that the producing states should be able to control prices for intrastate sales, as they now can under Sec. 602(a) of the NGPA? If so, how does that square with your opposition to price controls generally.

5. Do you believe that producers should be insulated from suits by royalty owners if they voluntarily renegotiate their contracts?

6. Do you believe that S. 615 provides a realistic amount of time for contract renegotiation before the market-out provision would take effect? What if the new bill is not enacted until mid-1984? How much time would be necessary then?

7. If controls are removed in the manner proposed by the Administration, or in any other manner, will prices rise or fall? By how much? Why?

8. If prices fall, how much will production fall?

9. If prices rise, how much will production rise?

10. Can you explain specifically and in detail why prices are not falling now?

11. Giving a broad interpretation to the Natural Gas Act and the Natural Gas Policy Act, what authority might the FERC have to remove barriers to the fall prices? Could its authority under Section 601(c) of the NGPA, concerning limitations on passthroughs in the event of "fraud, abuse, or similar grounds", be interpreted to provide such authority? Could its rule-making authority under Section 501(a) of the NGPA be used to rectify the situation?

QUESTIONS FOR MR. HARMON

1. On page 8 of your statement, you criticize the Administration's bill for its lack of incentives for new exploration. How do you think it should be amended to fix that problem? Would you exempt "new new" gas from the cap and passthrough limitations?

2. Could you explain in greater detail how the "phased in passthrough" you suggest on page 11 would work?

QUESTIONS FOR MR. WALZEL

1. What portion of your sales are direct sales, and what portion of your sales are sales for resale?

2. Do you agree with Secretary Hodel's stated intent for the market-out provision -- that is, either party to any contract would be able to market-out?

3. Are you suggesting (on pages 4 and 5 of your testimony) that a right of first refusal be added to the market-out provision in S. 615?

4. If a producer markets out, and then goes to another pipeline to sell his gas, why would that pipeline take the negotiation seriously if it knew the previous purchaser would have a right of first refusal?

5. Are you opposing the take-or-pay limitation in S. 615? If so, what if anything would you put in its place?

6. You mention the Texas Railroad Commission's ratable take reuiqrements. Section 101 of S. 615 provides a new limitation on affiliated production purchases (new section 603(f)). How would this requirement work in Texas? Would it override the Texas statute?

7. Please provide a copy of the Bayou Pipeline Case decision, and the Texas ratable take statute, for the Committee's hearing record.

QUESTIONS FOR MR. TERRILL

1. Has your ability to bid for gas improved since your last two appearances before the Committee? What price are you paying now? How much is available?

2. What percent of your sales are direct sales, and what percent are first sales (or sales for resale) and thus subject to price controls under the NGPA?

3. I am particularly interested in your comments on page 2 of your testimony with regard to the remarks of the Supreme Court in the Kansas case. The Court stated that the State of Kansas had

> "a legitimate interest in correcting the imbalance between the interstate and intrastate markets..."

> a. We heard talk yesterday about the fact that S. 615 would recreate the "dual market system." In light of the fact that substantial volumes of gas in the interstate market are price controlled forever, and that the requirements of dedication and abandonment indicate they will remain in the interstate market forever, do you believe that the "dual market" has ever ceased to exist?

> b. Will it cease to exist in the immediate future?

> c. Do you feel that the authority of the State of Kansas to regulate the intrastate market is limited to correcting the imbalances caused by the NGPA, or may its regulatory authority continue to operate independently of such imbalances?

> d. Does this not indicate that the States are empowered to recreate "dual markets" at their will at any time in the future?

> e. Would Kansas have price control authority if Sec. 602(a) were repealed?

4. Some interstate pipelnes and others argue that the failure to apply the passthrough limitation to intrastate pipelines will effectively give intrastates a bidding advantage over interstates.

> a. As I read your testimony, your prices are already at or near market clearing levels. Am I correct in stating that this fact will effectively prevent you from having a "bidding advantage"?

> b. If you do begin to pay above market prices for new gas, is not this the sort of thing that would tempt a state regulatory agency to step in and regulate your prices in a fashion similar to the passthrough limitation on interstates?

c. If your prices begin to exceed market clearing levels, is there anything which would prevent interstate lines from offering cheaper prices to your customers?

d. Is not this threat all the greater since most of your customers are industrial?

5. As I understand the access provisions of S. 615, they would merely put into statutory language the very policy whch is currently being followed by FERC. Is that correct?

a. This policy merely allows you to purchase OCS gas and gas produced in another state, is that correct?

b. At any such time as you built a facility out to teh OCS or across state lines you would become jurisdictional to the Commission, correct?

6. You state that S. 615 does not apply the transportation responsibility to intrastate lines, but that historically intrastates have been more than willing to transport gas under a direct sale.

a. What percentage of your current load is made up of gas transported for direct sale customers?

b. Even assuming that you were unwilling to transport gas under such an arrangement, are no the traditional intrastate markets so mature that an extensive pipeline system is present, thus offering most direct sale purchasers a variety of pipelines from which to choose?

c. You indicate that application of this requirement to intrastate lines might produce a tremendous burden at the FERC. I assume that you anticipate that such an applciation would by definition include all "Hinshawed" piplines and local distribution companies?

d. Do you have any idea how many such facilities would be affected?

e. Do I overstate the proposition that extending the transportation responsibility to this extreme could theoretically allow a single residential customer to enter into a direct sale contract with a producer with the pipeline and distribution company forced to transport that volume of gas?

7. Yesterday, there was some confusion over whether the definition of "first sale" included direct sales in the intrastate market. What is your opinion?

QUESTIONS FOR MR. GREEHEY

1. If a producer markets-out, and then goes to another pipeline to sell his gas, why would that pipeline take the negotiation seriously if it knew the previous purchaser would have a right of first refusal?

QUESTIONS FOR MR. JONES

1. At approximately what price does the price of natural gas become prohibitively expensive for the production of ammonia for fertilizers?

2. After decontrol, would the market clearing price for natural gas be low enough to continue the domestic production of ammonia for fertilizer?

Howard

HOUSTON PIPE LINE COMPANY
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HOUSTON, TEXAS 77001

JAMES V. WALZEL
PRESIDENT

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SENATE COMMITTEE ON
ENERGY AND NATURAL RESOURCES
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Official Committee File

March 23, 1983

The Honorable James A. McClure, Chairman
Committee on Energy and Natural Resources
United States Senate
333 RSOB
Washington, D. C. 20510

Re: Committee Hearings March 9-12 on S. 615

Dear Senator McClure:

In response to written questions submitted to me as a result of my participation in subject hearings on March 10, please accept for the record the following:

General Questions for Panel Three

Houston Pipe Line Company supports S. 615 (Q. No. 1), and if required to support or oppose it without changes, we would support it as a preferable alternative to continuing to operate under the Natural Gas Policy Act (Q. No. 3).

Attached to this letter as Exhibit "A" are suggested changes to some of the provisions of S. 615 urged in my written comments (Q. No. 2). The short period of time allowed for this response has not permitted us to prepare for submission now statutory wording changes that we would suggest be incorporated into S. 615 relative to market out rights. There is attached as Exhibit "B" a copy of our contract market out provision which has proven satisfactory to Houston Pipe Line and its producers, although it would need to operate both ways under S. 615.

We do not believe that wellhead price controls should be legislated by either federal or state authorities (Q. No. 4). Twenty-nine years of experience since the famous Phillips Case have shown that producers cannot be effectively regulated as utilities, but they have in the aggregate a remarkable capacity to respond to market forces.

A period of 12-18 months after enactment of S. 615 should be adequate for contract renegotiations to be completed before a market out provision would become operative (Q. No. 6). Some producer protection from royalty owner claims arising from contract renegotiations seems appropriate, although perhaps such protection should be in the nature of a strong, rebuttable presumption of fair dealing and fair market values instead of an absolute bar to any type of claim (Q. No. 5).

We earnestly believe that decontrolling wellhead prices for gas would cause prices to reduce modestly in the short term because they are now higher than market clearing levels on most interstate and some intrastate pipelines, and, given a legal procedure such as that provided in S. 615, can be lowered (Q. No. 7). Prices for most deep and tight sands gas are currently being reduced because of market conditions and a better understanding by some of market clearing values, although some pipelines' contracts do not contemplate lower prices and are partially frustrating market forces (Q. No. 10).

Until the NGPA was enacted, the experience in Texas intrastate markets was that a free market in producer prices will operate so that prices will increase moderately when more supply is needed, and when supplies are adequate, prices will not increase inordinately and can reduce (Q. Nos. 8-9).

Houston Pipe Line will defer to the FERC and others having direct interests suggested proposals designed to bring interstate pipeline gas buying practices more in line with traditional utility rate setting principles (Q. No. 11).

Questions from Republican Senators

Questions Nos. 1-3 are answered above.

Because the "gas cap" would include renegotiated prices for gas under existing contracts on a rolling three months' average basis, Houston Pipe Line cannot offer a reliable estimate of what level the gas cap would be initially or during the transition to decontrol (Q. No. 4).

All segments of the gas industry would operate under S. 615 with less chaos than is being experienced working under the NGPA because wellhead prices would settle at market clearing levels under the operation on the market out provision of S. 615. Thereafter, prices would be governed by steady market forces, instead of responding to the market distortions effective under the NGPA (Q. No. 5).

Questions for Houston Pipe Line Company

During January, 1983, 67% of Houston Pipe Line's sales were direct to consumers and 33% were sales for resale (Q. No. 1).

We believe the market out provision should apply to any first sale of gas as defined under the NGPA and that it should be in the nature of a right of first refusal (Q. Nos. 2-3). Rights of first refusal have historically caused producers and pipelines to negotiate mutually agreeable prices in most instances, and when the negotiations have failed, Houston Pipe Line and others have not been reluctant to submit bids for new supplies even though the original purchaser might well elect to match it (Q. No. 4).

We believe take or pay problems can and should be negotiated as a part of the pricing renegotiations contemplated in the market out provision (Q. No. 5). To the extent S. 615 would preclude pipelines from taking gas ratably from all producers in a field and from all fields from which the pipeline purchases gas, then it would be inconsistent with the Texas Railroad Commission ratable take orders. S. 615 might well override Texas law to the detriment of producers and royalty owners whose correlative rights would not be adequately protected (Q. No. 6).

Attached are Exhibits "C" and "D", respectively, of the Bayou Pipeline Case and the Texas Railroad Commission's ratable take order (Q. No. 7).

Very truly yours,

James V. Walzel

JVW:jab

Attachments

Exhibit "A"

1. On page 19, paragraph (1) of subsection (a) of Section 401 should be amended to read as follows:

(1) amending subparagraph (A) of paragraph (1) to read as follows:

"(A) IN GENERAL. -- The Commission may, by rule or order, authorize any interstate pipeline to transport natural gas on behalf of any person. Such transportation is not resticted to the transportation of natural gas between two points in the same state."

2. On page 22, Section 401 should be amended to add a new subsection at the end thereof, as follows:

(d) Nothing in this Act shall be deemed to confer on the Commission jurisdiction over the purchase, sale, assignment or transportation by an intrastate pipeline company or a local distribution company of natural gas which is not committed or dedicated to interstate commence within the meaning of either the Natural Gas Act or the Natural Gas Policy Act of 1978.

3. On page 25, subsection (b) of Section 402 should be amended to read as follows:

"(e) NONDISCRIMINATION PROVISION. -- The Commission may not condition or deny any authorization of the ~~sale or~~ transportation of natural gas under this Act or the Natural Gas Act on the basis of whether the gas is consumed in the interstate market on the intrastate market."

EXHIBIT "B"

"(a) Notwithstanding the foregoing provisions of this Section, if at any time and from time to time Buyer determines that economic conditions indicate a downward change in the value to Buyer of the gas purchased from Seller, then Buyer is hereby given options to cause the price to be paid by Buyer for Seller's gas to be renegotiated. Any request for a rengotiation of price shall be given in writing by Buyer to Seller not less than thirty (30) days prior to the date upon which such renegotiated price is to become effective. Buyer and Seller agree to negotiate in good faith to determine a renegotiated price which will reflect the economic conditions and the burden on Buyer with respect to the price in effect hereunder at the time such request for rengotiation is given. Such rengotiated sales shall be at any price and under any terms and conditions as may be mutually agreed upon by the parties. However, in the event the parties cannot mutually agree, then Buyer and Seller agree that the rengotiated price shall be that price which Buyer determines unilaterally to represent the economic value of such gas to Buyer, and in such event, Buyer and Seller agree further that at any time within ninety (90) days after the date the unilaterally set rengotiated price becomes effective, Seller may elect to terminate this Contract, subject to the provisions of paragraph (b) below, if it can sell such gas to another pipeline company which is ready, willing and able to purchase such gas at a price higher than the unilaterally set renegotiated price, by giving written notice of such election to Buyer. The sale and purchase of gas hereunder shall continue at the unilaterally set renegotiated price for a period of ninety (90) days after the date Seller notifies Buyer of its intention to terminate the Contract, at which time this Contract shall terminate, subject to the provisions of paragraph (b) below.

(b) In the event Seller receives a bona fide written offer from another pipeline company that is ready, willing and able to purchase Seller's gas at a price higher than the unilaterally set renegotiated price, then, together with such written notice to terminate this Contract, Seller shall submit to Buyer a copy of the bona fide offer made to Seller by such other pipeline company. Seller agrees that Buyer shall have thirty (30) days in which to elect either (i) to match the price contained in such bona fide offer made to Seller by such other pipeline company and continue to purchase Seller's gas hereunder, or (ii) to allow this Contract to terminate as provided in paragraph (a) above.

(c) In the event Seller elects to terminate this Contract pursuant to paragraph (a) above by selling such gas to another pipeline company at a price higher than the unilaterally set renegotiated price and Buyer does not elect to continue to purchase Seller's gas hereunder by matching the bona fide offer made by such other pipeline company pursuant to paragraph (b) above, then, at Buyer's option, Buyer and Seller shall enter into a transportation agreement under the terms of which Buyer shall be obligated to transport the gas dedicated hereunder to a mutually agreeable point on Buyer's pipeline system for redelivery to Seller. Such transportation obligation will extend through the original term of this Contract, and the initial transportation fee shall correspond to the fees Buyer is charging others for similar service under new gas transportation agreements executed within the six (6) month period immediately preceding the effecitve date of termination of this Contract."

BAYOU PIPELINE CORPORATION,
Appellant,

v.

RAILROAD COMMISSION of Texas and
Walter Van Norman, Appellees.

No. B-7029.

Supreme Court of Texas.

Jan. 25, 1978.

Pipeline owner and operator sought a permanent injunction against enforcement of a Railroad Commission order directing it to transport natural gas belonging to royalty owner at certain rate. The District Court No. 53, Travis County, Jones, J., denied injunction and declared that the Commission's order was in all things valid, and operator appealed. The Supreme Court, Greenhill, C. J., held that: (1) Railroad Commission was authorized to establish and enforce "fair and reasonable rates" to be charged by operator for transporting natural gas through its pipelines and (2) as evidenced by its findings of fact and conclusions of law, the Commission arrived at rate by determining fair return on fair value rate base of operator's transmission properties in line with statutory standard.

Affirmed.

1. Statutes ⇨197

While there may be circumstances which call for construction of "and" in a statute to mean "or," ordinarily "and" and "or" are not interchangeable.

2. Carriers ⇨12(11)

Legislature expressly intended to exclude from definition in Public Utilities Regulatory Act those entities engaged in both production and gathering of natural gas and thus, since gas gathering pipelines may be considered as utilities under both PURA and the Cox Act, Railroad Commission, which under the Cox Act has authority to regulate transportation rates to be charged by pipelines, was authorized to establish and enforce "fair and reasonable rates" to be charged by pipeline operator, which described itself as a "gas gathering pipeline" and contended that such pipelines were excluded from definition of "utilities" in PURA, for transporting natural gas through its pipelines. Vernon's Ann.Civ.St. arts. 1446c, §§ 3(c), 3(c)(3), 90(a), 6050 et seq., 6050, subd. 2, 6053.

3. Carriers ⇨12(1)

Railroad Commission, which arrived at rate of 4.07 cents per mcf for transportation of natural gas about two miles from wellhead to major pipeline connection by determining fair return on fair value rate base of pipeline operator's transmission properties, correctly determined rate under standard codified by statute to be charged by operator, which did not contend that eight percent was not fair rate of return nor that it had become significantly more expensive to transport gas, but claimed that pipeline company providing transportation services should get share of huge gas price increase. Vernon's Ann.Civ.St. arts. 1446c, §§ 39, 40, 6053.

Hart & Hart, James P. Hart and Joseph H. Hart, Austin, Sanford W. Likover, Bellaire, for appellant.

John L. Hill, Atty. Gen., Marvin Sentell, Asst. Atty. Gen., Scott & Douglas, James N. Cowden, Austin, for appellees.

GREENHILL, Chief Justice.

Bayou Pipeline Corporation brings this direct appeal from a judgment of the 53rd District Court of Travis County. As plaintiff in the district court, Bayou Pipeline Corporation [hereinafter Bayou] sought a permanent injunction against the enforcement of a Railroad Commission order dated November 23, 1976. Briefly summarized, this order directed Bayou to transport natural gas belonging to Walter Van Norman at a rate of 4.07 cents per thousand cubic feet [mcf]. The district court denied the injunction and declared that the Railroad Commission's order was in all things valid. Invoking this court's jurisdiction under Article 1738a[1] and under Rule 499a, Texas Rules of Civil Procedure, Bayou presents two questions of law for our determination: first, whether the Railroad Commission had authority to fix transportation rates to be charged by Bayou, and second, whether the rate established by the Commission was determined by the correct standard. We hold for the appellees, the Railroad Commission and Walter Van Norman, on both points; and we affirm the judgment of the district court.

The present dispute had its beginnings with a mineral lease assignment from Walter Van Norman to Bertman Gas & Oil Corporation [hereinafter "Bertman"]. In 1971, Van Norman assigned to Bertman a working interest in the Gephardt, *et al*, Lease in Jefferson County, Texas. Van Norman reserved, in kind, a 22½ percent of ⅞ths overriding royalty interest in the oil and gas produced from the lease. Under the terms of the assignment, Bertman assumed the obligation of delivering Van Norman's share of the oil and gas production to market along with Bertman's share. Since 1971, all of Van Norman's and Bertman's production from the Gephardt Lease has been transported from the wellhead by Bayou Pipeline Corporation. Bayou, a wholly owned subsidiary of Bertman, owns and operates an eight and one half mile long pipeline system in Jefferson and Chambers Counties. The gas produced from the Gephardt Lease is transported by Bayou some two miles to a 20-inch pipeline owned by Union Texas Petroleum Corporation, a division of Allied Chemical Corporation. The delivery point on the 20-inch line is known as the "Jackson Pasture" delivery point.

Following the assignment to Bertman, Van Norman entered into a contract to sell his 22½ percent of the gas produced from the Gephardt Lease to Allied Chemical Corporation. The contract price was, in effect, 26 cents per mcf, and the gas was to be delivered at the Jackson Pasture delivery point. Bertman sold its 77½ percent of the gas produced to Bayou, at the wellhead, for a price of 22 cents per mcf. Bayou then transported the gas to the Jackson Pasture delivery point, where Bayou sold it to Allied Chemical Corporation for 26 cents per mcf. Van Norman's gas was transported along with Bertman's and, pursuant to his assignment to Bertman, Van Norman paid no transportation charge for the delivery of his gas.

Both Van Norman's and Bayou's gas sale contracts with Allied Chemical Corporation expired April 27, 1975. At that time, Bayou and Bertman entered a new sales contract in which Bertman agreed to sell its share of the gas produced from the Gephardt Lease to Bayou, at the wellhead, for approximately $1.438 per mcf. Bayou in turn, entered into a contract to sell that portion of the gas to Lo-Vaca Gathering System, at the Jackson Pasture delivery point, for approximately $1.89 per mcf. Van Norman also contracted to sell his share of the gas to Lo-Vaca, at the Jackson Pasture delivery point, for $1.89 per mcf. Bayou has continued to transport both Bertman's and Van Norman's gas, but Bayou now looks to Van Norman for payment of transportation charges with respect to his share.

Whether Bertman remains obligated to cover the cost of transporting Van Norman's gas to market is the subject of other litigation between Bertman and Van Norman. The immediate dispute came into being because the transportation charge initially demanded by Bayou was considered by Van Norman to be excessive. As the parties were unable to agree upon a "fair and reasonable" transportation rate, Van Norman applied to the Railroad Commission for the establishment of such a rate. His application was placed on the Commission's Gas Utilities Docket, No. 633; and a full hearing was held before an Examiner, with both parties presenting argument and evidence.

On November 23, 1976, the Railroad Commission rendered an order containing findings of fact and conclusions of law. Among the Commission's most significant findings were: (1) that Bayou owns and operates a natural gas pipeline which crosses public roads; (2) that the fair value rate base of Bayou's transmission properties is $23,781.00; (3) that, with tax liability and with total operating expenses of $45,011.00, a total revenue of $47,473.00 is required for Bayou to earn an 8% rate of return on the fair value rate base; and (4) that, with the annual delivery volume Bayou can reasonably expect, a transportation rate of 4.07 cents per mcf will produce revenues of $47,473. Neither party here contends that these findings are not supported by the evidence.

---

[1] All statutory references are to Vernon's Texas Civil Statutes Annotated.

In its conclusions of law, the Commission determined: (1) that Bayou is a gas utility within the meaning of Art. 6050, *et seq.*, (2) that the Commission has authority to fix a reasonable transportation rate to be charged by Bayou, (3) that the Commission has authority to compel Bayou to transport natural gas at the prescribed rate, and (4) that an 8% rate of return on the quoted fair value rate base is a fair and reasonable rate of return. The Commission proceeded to order Bayou to transport Van Norman's gas from the Gephardt Lease to the Jackson Pasture delivery point at the rate of 4.07 cents per mcf. Bayou sought judicial review of this order in the District Court pursuant to the Administrative Procedure and Texas Register Act, Art. 6252–13a § 19. As noted above, the District Court upheld the order.

In its first point of error before this court, Bayou asserts that the Railroad Commission had no jurisdiction to regulate the transportation rate to be charged by Bayou. To reach this position, Bayou places what we feel is an unwarranted construction on certain provisions of the Public Utilities Regulatory Act, Art. 1446c [hereinafter PURA].

All parties to this dispute agree that the Cox Act, Art. 6050, *et seq.*, gives the Railroad Commission authority to regulate transportation rates to be charged by pipelines such as Bayou. The term "utility" is defined in Article 6050 to include companies

> . . . (2) owning or operating or managing a pipeline for the transportation or carriage of natural gas . . . if said line or any part thereof is laid upon, over or under any public road or highway of this State . . . .

Bayou does not challenge the Railroad Commission's finding that Bayou's pipelines do cross public roads. Article 6053, headed "Regulation of Utilities," provides, in relevant part:

> The Commission after due notice shall fix and establish and enforce the adequate and reasonable price of gas and fair and reasonable rates of charges and regulations for transporting, producing, distributing, buying, selling, and delivering gas by such pipelines in this State.

This provision clearly encompasses the activity carried on by Bayou, and it therefore authorizes the Railroad Commission to establish and enforce "fair and reasonable rates" to be charged by Bayou for transporting natural gas through its pipelines.

Bayou argues, however, that this authority of the Railroad Commission was eliminated, at least as to "gas gathering pipelines," by the enactment of PURA. There are several stages to this argument. First, Bayou describes itself as a "gas gathering pipeline" and contends that such pipelines are excluded from the definition of "utilities" in PURA, Art. 1446c § 3(c). Bayou then looks to Section 90(a) of PURA, which provides for the repeal, effective September 1, 1976, of specific enumerated statutes and of "all other laws and parts of laws in conflict with this Act." Bayou concludes that, because "gas gathering lines" are excluded from the definition of utilities in PURA, and are included in the definition of utilities in the Cox Act, those portions of the Cox Act which give the Railroad Commission jurisdiction over gas gathering pipelines are repealed.

Bayou's argument is based on its position that under PURA, gas gathering pipelines are not utilities. Article 1446c § 3(c) is the provision relevant here; and this section includes in the definition of "utility" and "public utility" any non-municipal corporation which owns or operates for compensation in Texas, equipment or facilities for:

> (3) transmitting or distributing combustible hydrocarbon natural or synthetic natural gas for sale or resale in a manner which is not subject to the jurisdiction of the Federal Power Commission under the Natural Gas Act (15 U.S.C.A., Section 717, et seq.) ("gas utilities" hereafter) *provided* that *the production and gathering of natural gas*, the sale of natural gas in or within the vicinity of the field where produced, the distribution or sale of liquified petroleum gas, and the transportation, delivery, or sale of natural gas for fuel for irrigation wells or any other direct use in agricultural activities *is not included*. [Emphasis ours]

The basic point of contention between the parties to this lawsuit is whether "the production and gathering of natural gas" constitutes ones or two excluded activities.

[1] Bayou strongly urges that the word "and" between "production" and "gathering" should be read as "or," so that a company engaged in *either* production *or* gathering of natural gas is excluded from the PURA definition of utility. In support of this argument, Bayou relies on *Peacock v. Lubbock Compress Company*, 252 F.2d 892 (5th Cir. 1958), and other cases in which courts have construed the word "and" in a statute to mean "or." While there may be circumstances which call for such a construction, ordinarily the words "and" and "or" are not interchangeable. In *Board of Insurance Commissioners v. Guardian Life Insurance Co.*, 180 S.W.2d 906 (Tex.1944), this court adopted the following language from 3 C.J.S. 1068 [now 3A C.J.S. 452–453], as stating the correct rule as to interpreting "and" to mean "or."

> 'This construction . . . is never resorted to except for strong reasons and the words should never be so construed unless the context favors the conversion; as where it must be done in order to effectuate the manifest intention of the user; and where not to do so would render the meaning ambiguous, or result in an absurdity; or would be tantamount to a refusal to correct a mistake.'

The court in that case held that the proposed rewording of the statute in question would result in judicial legislation rather than judicial interpretation; and the word "and" was construed to mean "and."

[2] Bayou has not demonstrated that substituting "or" for "and" between "production" and "gathering" in Article 1446c § 3(c)(3) is necessary to effectuate the Legislature's intent or to prevent an ambiguity, absurdity, or mistake. To the contrary, there is reason to believe that the Legislature expressly intended to exclude from PURA's definition of "utility" those entities engaged in *both* production *and* gathering of natural gas.

In the first place, if "gathering" is to stand alone, "production" must also stand alone, and there was no need for the Legislature to exclude "production" from a definition which refers to the transmission and distribution of natural gas; clearly gas cannot be transmitted or distributed until produced.

Second, we consider the construction that has historically been placed upon the definition of "utility" in the Cox Act, Art. 6050 § 2, quoted above. While this definition would appear to include any pipeline system which crosses public roads, two Attorney General's opinions have construed the definition as not including gathering systems operated by gas producers simply as an incident to their business of gas production, even though such systems did cross public roads. Atty.Gen.Op. 0–3524–A (1942); Atty.Gen.Op. WW–625 (1959). In the former opinion, the Attorney General described as a "natural and fundamental law of the gas producing business" the fact that a gas producer may need to construct a gathering system to deliver his gas to a purchaser. The opinion concluded that ". . . a producer is not engaged in the pipeline business just because he must necessarily use pipes to gather his product for marketing." Atty.Gen.Op. 0–3524–A (1942), p. 5. The Attorney General reasoned that the Legislature was aware of the "fundamental laws" of the gas production business when it enacted Art. 6050, and we feel that the Legislature was also aware of such laws when it enacted Art. 1446c § 3(c)(3). The combined activities of production *and* gathering have traditionally been distinguished from other pipeline operations, and it is more than reasonable to infer that the combined activity is what the Legislature meant to exclude from PURA's definition of "utility."

Because we reject Bayou's contention that Article 1446c § 3(c)(3) excludes gathering systems, such as Bayou, from the PURA definition of "utility," it is unnecessary to address the remaining arguments raised under Bayou's first point of error. Since gas gathering pipelines may be considered as utilities in both PURA and the Cox Act, the conflict Bayou alleges between the statutes does not exist.

[3] In its second point of error, Bayou asserts that even if the Railroad Commission did have jurisdiction to fix a transportation rate to be charged by Bayou, the Commission used an incorrect standard in establishing the rate of 4.07 cents per mcf for the transportation of the gas about two miles from the wellhead to the major pipeline connection. We disagree. As evidenced by the Commission's findings of fact and conclusions of law, summarized above, the Commission arrived at this rate by determining a fair return on the fair value rate base of Bayou's transmission properties. This was in line with the standard which is codified in PURA, Art. 1446c §§ 39 and 40, as follows:

> Sec. 39. In fixing the rates of a public utility the regulatory authority shall fix its overall revenues at a level which will permit such utility to recover its operating expenses together with a reasonable return on its invested capital.
>
> Sec. 40(a) The regulatory authority shall not prescribe any rate which will yield more than a fair return upon the adjusted value of the invested capital used and useful in rendering service to the public.

See, Railroad Commission of Texas v. Houston Natural Gas Corp., 155 Tex. 502, 289 S.W.2d 559 (1959), sometimes known as the *City of Alvin* case. Bayou does not contend that the fair value rate base or expense figures used by the Commission are unsupported by the evidence, nor does Bayou contend that 8% is not a fair rate of return. Further, Bayou does not contend that it has become significantly more expensive to transport gas from the Gephardt Lease. Essentially, Bayou's position is that the pipeline company providing transportation services should get a share of the huge increase in the price of natural gas. To support this position, Bayou looks to Art. 6053, which authorizes the Railroad Commission to "establish a fair and equitable division of the proceeds of the sale of gas between the companies transporting or producing the gas and the companies distributing or selling it." Assuming that this provision is applicable to the situation here, a rate which makes a "fair and equitable division of the proceeds" must nevertheless comply with the "fair return" standards codified in PURA.

The judgment of the district court is affirmed.

Earl BROUSSAR[illegible] et ux., Relators,

Honorable Dav[illegible] A. DUNN et al., Respondents.

No. B[illegible]7170.

Supreme Court of Texas.

Feb. 1[illegible], 1978.

Action was brought seeking writ of mandamus directing [illegible] district judge to vacate and expunge from the record an order setting aside a default judgment and granting a new trial. The Supreme Court, Johnson, J., held that: (1) the trial court is not dation is adverse to a party in the docket, a proposal will be issued. Exceptions to the proposal may be filed within 13 days after service, and replies to exceptions may be filed within 18 days after service. Exceptions and replies must be served on all other participants and be received by the commission within these times in order to be considered.

(f) Dockets will be consolidated if practicable for presentation of the examiner's recommendations to the commission.

(g) If a person alleging a justiciable or administratively cognizable interest was not given notice, a written motion in intervention may be filed by the date of commission consideration in open meeting showing good cause for the commission to grant the intervention or take other appropriate action.

(h) Motions for rehearing may be filed within 15 days of an order. A reply thereto may be filed within 25 days of the order. Motions and replies must be received by the commission within these times in order to be considered.

(i) Within five days after the last day for filing a motion for rehearing or, if such a motion is filed, within 15 days after it is denied or overruled by operation of law, the commission will transmit to the FERC a copy of its determination, together with the record and any additional material required. Notice of the transmittal will be given to the applicant, nonoperators, and, in the case of section 108 determinations, to the purchaser(s).

(j) If a determination is reversed by the FERC, an applicant may file a new application based on additional evidence. If a determination is remanded by the FERC, notice will be sent to all parties, and a hearing will be scheduled if required.

Authority: The provisions of this § 3.84 issued under Acts 1977, 65th Leg., ch. 871, art. I, effective September 1, 1977, as amended (Natural Resources Code §§ 81.001 — 113.234).

Source: The provisions of this § 3.84 amended to be effective April 25, 1980, 5 TexReg 1418.

MISCELLANEOUS

§3.91 (051.02.99.001). Gas Market Demand, Allocation of Gas Well Allowables, and Ratable Take between Gas Wells and Gas Fields.

This section supplements, but does not amend or repeal any existing commission rule.

(1) The following definitions are applicable to this section:

(A) *First purchaser* — One purchasing natural gas from a producer.

(B) *Downstream purchaser* — One purchasing natural gas for resale from other than a producer.

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(2) The producer's forecast (Form G-7) and the purchaser's nomination (Form T-3), both required by §3.30 (051.02.02.030) of this title (relating to Gas Nominations Required) (Statewide Rule 30), shall be utilized in arriving at the actual demand for gas from all gas producing fields in the State of Texas.

(3) Operators of gas wells (producers) shall submit the following information, depending on the type of gas field in which the gas wells are completed:

(A) For those gas fields with special field rules which establish gas allocation procedures (prorated), the producer shall furnish the following:

(i) Form P-4, producer's certificate of compliance (on which the gatherer, the first purchaser, and the initial nominator shall be named).

(ii) Form G-10, gas well status report (semiannually unless otherwise required by the special field rules).

(iii) Form G-7, producer's forecast (monthly as required by §3.30 (051.02.02.030) of this title (relating to Gas Nominations Required) (Statewide Rule 30) and in accordance with instructions on Form G-7). Each producer shall forecast a total quantity of gas not to exceed the amount of gas the producer expects to consume *(e.g.*, for compressor use, cycling, lease operations, *etc.)* plus the amount of gas it expects to deliver to its purchasers as indicated by information provided by its initial nominators pursuant to paragraph (4) of this subsection.

(B) For gas wells in fields operated under statewide rules or in fields having special spacing rules but with no gas allocation provisions (nonprorated):

(i) Form P-4, producer's certificate of compliance (on which the gatherer, the first purchaser, and the initial nominator shall be named).

(ii) Form G-10, gas well status report (semiannually in accordance with instructions on the form).

(C) For gas wells completed in associated reservoirs and operating under §3.49(b) (051.02.02.049(b)) of this title (relating to Gas-Oil Ratio) (Statewide Rule 49):

(i) Form P-4, producer's certificate of compliance (on which the gatherer, the first purchaser, and the initial nominator shall be named).

(ii) Form G-10, gas well status report (annually in accordance with instructions on the form).

(4) Subject to approval by the staff of the Oil and Gas Division, a first purchaser may request someone else to act as its initial nominator. Otherwise, the first purchaser shall act as initial nominator. The initial nominator of gas from any gas well in the State of Texas shall prepare and file monthly Form T-3, Purchaser's Nomination, in accordance with the instructions on the form. At least five days prior to the deadline for filing its Form T-3, each

initial nominator shall inform its producers of the amount it intends to nominate from each producer. Each initial nominator shall nominate for a total quantity of gas equal to the sum of the following:

(A) The quantity for which the initial nominator is the ultimate consumer. This amount will include lease shrinkage, line loss, plant fuel, compressor use, as well as the gas which the initial purchaser may consume at the point of final delivery.

(B) The total quantity of gas nominated by its downstream purchasers in accordance with the following provisions:

(i) All downstream purchasers who take more than 10 mmcf per day shall submit monthly to their initial or first nominators of gas a downstream purchaser's nomination based on a firm forecast of that purchaser's actual demand.

(ii) If a downstream purchaser takes gas from more than one source of supply, that downstream purchaser's nomination shall show expected demand from each source.

(iii) A downstream purchaser's nomination shall be based on that purchaser's purchase and sale contract obligations, system capacity requirements, customer demand, and other similarly related factors. Actual takes by a downstream purchaser shall be reasonably proportional to its nominations, although it may first satisfy its contractual minimum take obligations.

(iv) Such written monthly nominations from downstream purchasers shall be kept on file by the initial nominator for commission inspection and shall be filed with the commission on its request.

(5) The initial nominator of gas shall ratably apportion its nominations on Form T-3 and shall ratably apportion its actual take from all gas wells connected to its system so that takes from various gas producing properties shall be made without discrimination in favor of one producer or person as against another in the same field and without unjust or unreasonable discrimination as between fields. The following instructions shall apply to initial nominators in preparing nominations (Form T-3) and in taking gas from various sources of supply, and to commission staff in calculating allowables:

(A) Nominations shall be based on each well's deliverability as reflected by the well's Form G-10 on file with the commission. Actual takes shall be based on the commission's assigned allowable for each well, with proper recognition for special allowable wells and limited capacity wells.

(B) First priority in the nomination for the purchase of gas shall be given to casinghead gas and second priority to Statewide Rule 49(b) gas so that gas produced in association with oil production shall not be wastefully vented and oil production shall not be unnecessarily curtailed. Under special circumstances, if market demand factors or temporary pipeline, com-

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pressor, or other operating difficulties result in less take from a Rule 49(b) gas well than its permitted allowable, then by special commission authority such underproduction may be carried forward and balanced as would be the case for any other gas well, provided, however, that no Statewide Rule 49(b) gas well may be allowed to overproduce its permitted allowable by a cumulative total in excess of one month's allowable.

(C) No gas well of any kind shall be given an allowable in excess of its capability to produce.

(D) Each new gas well operated under §3.28 (051.02.02.028) of this title (relating to Potential of Gas Wells To Be Ascertained and Reported) (Statewide Rule 28) and §3.29 (051.02.02.029) of this title (relating to Production of Gas Limited to 25% of Potential Capacity) (Statewide Rule 29) shall be assigned an allowable not to exceed the deliverability test volume as reported on Form G-10.

(E) Actual takes from a limited capacity well in a prorated field shall not be reduced to less than its capacity to produce unless all wells in the same field with capacity to produce exceeding that of the limited capacity wells have had their actual takes ratably reduced to the level of such limited capacity well. Texas Natural Resources Code §86.091 shall control the minimum takes from gas wells.

(6) No field shall be prorated pursuant to §3.29 (051.02.02.029) of this title (relating to Nonassociated Gas Well Allowable) (Statewide Rule 29) if each well in the field has a daily deliverability of 200 mcf or less. Wells in such fields shall be assigned allowables equal to their capacity to produce.

(7) The initial nominator of gas shall maintain and submit to the commission on request the following information:

(A) The physical capacity of the system for handling gas.

(B) The total monthly market demand for gas from the system.

(C) The nominations made for each field or reservoir connected to the system (both prorated and nonprorated).

(8) On complaint of noncompliance with the provisions of this section, or alleged discrimination as prohibited by the Common-Purchaser Act, Texas Natural Resources Code §§111.081 — 111.097, such matter will be set for hearing by the commission to determine if alleged complaints of discrimination are true, and if true, the necessary action to be taken.

(9) The commission's procedure of fieldwide balancing of overproduction and underproduction shall remain effective for all gas fields, provided that should it be determined by the commission, either on complaint by an interested party or on the commission's own initiative, that fieldwide balancing is not operating properly for an individual field, the commission, after notice and hearing, shall suspend fieldwide balancing for such field and take any other appropriate action to accomplish the purpose of the allocation of

production rules.

(10) If the operation of this section causes undue hardship for any person, the commission may grant an exception after proper notice and hearing.

Authority: The provisions of this §3.91 issued under Acts 1977, 65th Leg., ch. 871, art. I, effective September 1, 1977, as amended (Natural Resources Code §§51.291 — 51.303, §§52.291 — 52.296, §§81.001 — 113.234, §§131.001 — 131.270, and §§141.001 — 141.079).

Source: The provisions of this §3.91 adopted to be effective February 5, 1978, 3 TexReg 324; amended to be effective October 5, 1978, 3 TexReg 3617; amended to be effective February 15, 1980, 5 TexReg 335.

NATURAL GAS POLICY ACT (NGPA) STATE ALTERNATE PROCEDURES

Authority: The provisions of these §§3.101 — 3.104 issued under Acts 1977, 65th Leg., ch. 871, effective September 1, 1977 (Texas Natural Resources Code §81.052), unless otherwise noted.

Source: The provisions of these §§3.101 — 3.104 adopted to be effective January 9, 1981, 5 TexReg 5048, unless otherwise noted.

§3.101 (051.02.04.001). Definitions.

The following words and terms, when used in this chapter, shall have the following meanings, unless the context clearly indicates otherwise:

Commencement of surface drilling — The spud date.

Commission and *RRC* — The Railroad Commission of Texas.

FERC — The Federal Energy Regulatory Commission.

Operator — A person acting for himself or as an agent for others and designated to the commission as the one who has primary responsibility for complying with its rules and regulations in any and all acts subject to the jurisdiction of the commission.

Other seller — A person who sells natural gas from the subject well under a contract separate from the operator's contract.

Sections 102, 103, 107, and 108 — Those sections of the Natural Gas Policy Act of 1978 (NGPA).

§3.102 (051.02.04.002). Application Procedure.

(a) An application for a category determination may be filed by the operator of a well, or, when the operator has declined to file an application, by any other seller or a working interest owner. A filing by either any other seller or a working interest owner must be accompanied by a statement that the operator

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MAR 23 1983

Official Committee File

Howard

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J. L. TERRILL
PRESIDENT & CHIEF OPERATING OFFICER

SENATE COMMITTEE ON
ENERGY AND NATURAL RESOURCES
RECEIVED
MAR 23 1983
WASHINGTON, D.C. 20510

March 22, 1983

Honorable James A. McClure
Chairman, Senate Energy and
Natural Resources Committee
SD361 Dirksen Senate Office Building
Washington, D.C. 20510

Dear Senator McClure:

You will find enclosed five (5) copies of our responses to the follow-up questions asked by members of the Committee.

We appreciate the opportunity to express our views on the natural gas situation and are hopeful that the Committee will begin mark-up on S. 615 as soon as possible.

If we can be of further assistance to you or your Staff, please do not hesitate to contact us.

Sincerely,

J. L. Terrill

J. L. Terrill, President
Louisiana Intrastate Gas
Corporation

Enclosures
KBE/mcf

Questions from Republican Members of the Committee

Q-1 Please provide the Committee with the specific legislative language necessary to implement those changes to the Administration's bill, S. 615, that you identified in your oral and written testimony as being necessary. Also please provide the Committee a justification for each of your recommended changes.

A-1 We are not able to respond to this question by the deadline.

Q-2 Please provide the Committee with your estimate of the amount by which gas prices would increase or decrease, both over the short-run and over the long-run, if S. 615 is enacted.

A-2 As I stated at the hearing, I believe prices will decrease in the short-run if S. 615 is enacted. I do not know by how much. With respect to the long-run impact, once total deregulation is achieved after January 1, 1986, I believe prices will fluctuate, up and down, in response to market forces, as they did in the intrastate market prior to enactment of the NGPA.

Q-3 Please provide the Committee with your estimate of the amount by which gas supplies and gas reserves would increase or decrease, both over the short-run and over the long-run, if S. 615 is enacted.

A-3 In the short-term, supply is not an issue for us. In the longer term, however, we believe the transition to a market-based gas supply situation will most effectively meet the demands of the consumer at the most reasonably obtainable prices.

Q-4 Please provide the Committee with your estimate of the level of the gas cap if S. 615 were enacted today and the amount by which the cap would reduce average purchased gas costs.

A-4 I believe it is likely that if S. 615 were enacted today, the gas cap price would be less than the § 102 price. I do not know the amount by which the cap would reduce average purchased gas costs.

Questions from Republican Members of the Committee (continued)

Q-5 Some witnesses appearing before the Committee have suggested that enactment of S. 615 would bring about chaos in the gas market. Please provide the Committee with your assessment of the prospect of that occurring.

A-5 I do not believe that enactment of S. 615 will result in chaos in the gas market.

Questions for Panel 3

Q-1 Do you support any of the bills pending before the Committee on Energy and Natural Resources? If so, please indicate which one(s).

A-1 We support the principles embodied in S. 615.

Q-2 Please provide the Committee with specific statutory language for any amendments you would like to see adopted if the Committee were to use S. 615 as a mark-up vehicle for natural gas legislation.

A-2 We will respond to this request as soon as we can.

Q-3 If the amendments you support are not adopted, and if you had to vote up or down on S. 615, would you support it or would you support a continuation of the existing law?

A-3 We would support S. 615.

Q-4 Do you believe that the producing states should be able to control prices for intrastate sales, as they now can under Section 602(a) of the NGPA? If so, how does that square with your opposition to price controls generally.

A-4 We do not advocate the imposition of price controls by the states or the Federal government. I am advised, that as a matter of statutory law, the Congress in Section 602(a) of the NGPA delegated to the states the power to change the maximum lawful price for any and all gas produced within that state, whether interstate or intrastate, so long as the price is below the federal ceiling price.

Q-5 Do you believe that producers should be insulated from suits by royalty owners if they voluntarily renegotiate their contracts?

A-5 Yes.

Q-6 Do you believe that S. 615 provides a realistic amount of time for contract renegotiation before the market-out provision would take effect? What if the new bill is not enacted until mid-1974? How much time would be necessary then?

Questions for Panel 3
(continued)

A-6 Yes. The bill as currently drafted is well balanced with respect to the timing of various provisions. We believe that it is necessary to provide reasonable time for renegotiation. If the bill is not enacted until mid-1984, however, the critical point is that the date the deregulation provisions take effect is not extended beyond January 1, 1986.

Q-7 If controls are removed in the manner proposed by the Administration, or in any other manner, will prices rise or fall? By how much? Why?

A-7 Please see response to question 2 from the Republican members of the Committee.

Q-8 If prices fall, how much will production fall?

A-8 The answer depends upon market conditions at the time.

Q-9 If prices rise, how much will production rise?

A-9 See response to question 8.

Q-10 Can you explain specifically and in detail why prices are not falling now?

A-10 Anecdotal evidence suggests that some prices are falling now at the wellhead as a result of market pressures. Delivered prices, however, are made up of many components in addition to wellhead prices, any one of which could operate to prevent prices paid by consumers from falling. These factors can vary on a pipeline-by-pipeline basis. Additionally, the pipeline's rate design and distribution company rates, as determined by the FERC and state commissions, will affect the price paid by the consumer.

Q-11 Giving a broad interpretation to the Natural Gas Act and the Natural Gas Policy Act, what authority might the FERC have to remove barriers to the fall prices? Could its authority under Section 601(c) of the NGPA, concerning limitations on passthroughs in the event of "fraud, abuse, or similar grounds", be interpreted to provide such authority? Could its rule-making authority under Section 501(a) of the NGPA be used to rectify the situation?

A-11 I have no opinion on this question.

Questions for Mr. Terrill

Q-1 Has your ability to bid for gas improved since your last two appearances before the Committee? What price are you paying now? How much is available?

A-1 Our ability to bid for gas has improved, since there is currently an excess of supply over current demand levels. However, in the long-term, as a result of the current slowdown in drilling activity, supply shortages are likely to develop. When demand picks up, we will continue to be disadvantaged under the NGPA since we have no low-priced gas with which to average in higher cost supplies. Our current gas purchases are at or below the Section 102 price.

Q-2 What percent of your sales are direct sales, and what percent are first sales (or sales for resale) and thus subject to price controls under the NGPA?

A-2 I do not understand your question. The qualifying phrase "and thus subject to price controls under the NGPA," needs clarification. All of our producer purchases of gas are subject to price controls under the NGPA except currently deregulated deep gas. Our sales, whether direct or resale sales, from our pipelines are not subject to NGPA controls. You may be confusing us with the category of pipelines which are really producer direct sales to end users. Direct sales from a producer must be distinguished from direct sales from pipelines, whether interstate or intrastate. In 1982, 72% of LIG's sales were pipeline direct sales; 19% were sales to other pipelines, and 9% were sales to distribution companies.

Q-3 I am particularly interested in your comments on page 2 of your testimony with regard to the remarks of the Supreme Court in the Kansas case. The Court stated that the State of Kansas had

> "a legitimate interest in correcting the imbalance between the interstate and intrastate markets..."

> a. We heard talk yesterday about the fact that S. 615 would recreate the "dual market system." In light of the fact that substantial volumes of gas in the interstate market are price controlled forever, and that the requirements of dedication and abandonment indicate they will remain in the interstate market forever, do you believe that the "dual market" has ever ceased to exist?

> b. Will it cease to exist in the immediate future?

Questions for Mr. Terrill
(continued)

c. Do you feel that the authority of the State of Kansas to regulate the intrastate market is limited to correcting the imbalances caused by the NGPA, or may its regulatory authority continue to operate independently of such imbalances?

d. Does this not indicate that the States are empowered to recreate "dual markets" at their will at any time in the future?

e. Would Kansas have price control authority if Sec. 602(a) were repealed?

A-3 a. Under current law, the dual market has been reversed. Interstate pipelines have significant advantages over intrastate pipelines under the NGPA.

b. I do not believe so.

c. It is my understanding that the states have the power to regulate commodities such as gas so long as there is no burden on interstate commerce and no conflict with a valid federal statute. That, I believe, is the underlying constitutional principle. It is my further understanding that Section 602(a) of the NGPA allows the states to lower the price ceilings established in the NGPA, so there are really two principles at work here.

d. At most, the states have some power to remedy some of the current inequities, but are unable to eliminate the dual market which exists today in favor of the interstate pipelines.

e. If federal price controls were to be continued and Section 602(a) were repealed, I am advised that a significant question could be raised as to whether Congress intended to supplant the states' authority under the Supremacy Clause.

Q-4 Some interstate pipelines and others argue that the failure to apply the passthrough limitation to intrastate pipelines will effectively give intrastates a bidding advantage over interstates.

Questions for Mr. Terrill
(continued)

a. As I read your testimony, your prices are already at or near market clearing levels. Am I correct in stating that this fact will effectively prevent you from having a "bidding advantage"?

b. If you do begin to pay above market prices for new gas, is not this the sort of thing that would tempt a state regulatory agency to step in and regulate your prices in a fashion similar to the passthrough limitation on interstates?

c. If your prices begin to exceed market clearing levels, is there anything which would prevent interstate lines from offering cheaper prices to your customers?

d. Is not this threat all the greater since most of your customers are industrial?

A-4 a. Yes.

b. We cannot pay above market clearing prices for new gas and retain our customers. However, if there is a problem I believe the state regulatory agency is the appropriate body to address such a problem.

c. It is my understanding that the FERC has jurisdiction over interstate pipeline sales and can determine the standards for allowing such sales.

d. Yes.

Q-5 As I understand the access provisions of S. 615, they would merely put into statutory language the very policy which is currently being followed by FERC. Is that correct?

a. This policy merely allows you to purchase OCS gas and gas produced in another state, is that correct?

b. At any such time as you built a facility out to the OCS or across state lines you would become jurisdictional to the Commission, correct?

Questions for Mr. Terrill
(continued)

A-5 S. 615 does put into statutory language FERC's current policy. I am advised, however, that in addition, it broadens the scope somewhat of certain kinds of non-jurisdictional activities.

a. Under the provisions of S. 615, I am advised that an intrastate pipeline could purchase gas from the OCS or from another state without the pipeline becoming subject to federal jurisdiction.

b. I am advised that constructing a facility across state lines or from the OCS would require a federal certificate, yes.

Q-6 You state that S. 615 does not apply the transportation responsibility to intrastate lines, but that historically intrastates have been more than willing to transport gas under a direct sale.

a. What percentage of your current load is made up of gas transported for direct sale customers?

b. Even assuming that you are unwilling to transport gas under such an arrangement, are not the traditional intrastate markets so mature that an extensive pipeline system is present, thus offering most direct sale purchasers a variety of pipelines from which to choose?

c. You indicate that application of this requirement to intrastate lines might produce a tremendous burden at the FERC. I assume that you anticipate that such an application would by definition include all "Hinshawed" pipelines and local distribution companies?

d. Do you have any idea how many such facilities would be affected?

e. Do I overstate the proposition that extending the transportation responsibility to this extreme could theoretically allow a single residential customer to enter into a direct sale contract with a producer with the pipeline and distribution company forced to transport that volume of gas?

A-6 a. In 1982, 51.2% of our total throughput was transportation for others. This includes transportation for other pipelines servicing direct sale customers, as well as transportation for direct sale customers. The latter category represents one-eighth of our total throughput.

Questions for Mr. Terrill
(continued)

b. Yes.

c. Yes.

d. According to FERC, there are over 200 Hinshawed pipelines operating in 40 states.

e. As a local distribution company is defined in § 2(17) of the NGPA, such a result could theoretically occur.

Q-7 Yesterday, there was some confusion over whether the definition of "first sale" included direct sales in the intrastate market. What is your opinion?

A-7 I am advised that "first sale" as defined in the NGPA (§ 2(21)) includes a direct producer sale to an end user in the intrastate market.

Howard

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MAR 23 1983

Official Committee File

SENATE COMMITTEE ON
ENERGY AND NATURAL RESOURCES
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WASHINGTON, D.C. 20510

March 23, 1983

The Honorable James A. McClure
Chairman, Committee on Energy and
Natural Resources
United States Senate
3106 Dirksen Senate Office Building
Washington, D.C. 20510

Dear Chairman McClure:

On March 10, 1983 Mr. William E. Greehey , Chief Executive Officer of Valero Energy Corporation, testified before the Committee as a witness on Panel 3 in the Committee's hearings on natural gas legislation. Subsequent to the hearings, the Committee submitted follow-up questions in writing to Mr. Greehey. Five copies of Mr. Greehey's responses to those questions are attached.

We hope that these responses are helpful to you in your consideration of this legislation.

Very truly yours,

Bracewell & Patterson

Paul W. Fox

Paul W. Fox

/ljm

QUESTIONS FOR MR. GREEHEY

1. If a producer markets-out, and then goes to another pipeline to sell his gas, why would that pipeline take the negotiation seriously if it knew the previous purchaser would have a right of first refusal?

1. The so called right of first refusal or "last look" provision is a relatively common provision in contracts containing "market out" provisions. Under this concept, if a pipeline wishes to exercise a so called "market out" provision the pipeline advises the producer what price that pipeline is willing to pay and the producer can either accept that price or reject it and seek a new market. If the producer rejects the price and finds another purchaser willing to pay a higher price, then the first pipeline has the right to meet that offer and retain the gas. This "last look" provision on the part of the existing pipeline purchaser has not discouraged other potential purchasers from making bona fide offers even though the new prospective purchasers realize that they will not get the gas if the original purchaser will meet the price. In short, the right of first refusal notion does ensure that the

producer will receive the best price possible for his gas while, at the same time, ensuring that a pipeline will not, overnight, lose its entire gas reserves.

QUESTIONS FOR PANEL THREE

1. Do you support any of the bills pending before the Committee on Energy and Natural Resources? If so, please indicate with one(s).

1. Valero supports S. 615.

2. Please provide the Committee with specific statutory language for any amendments you would like to see adopted if the Committee were to use S. 615 as mark-up vehicle for natural gas legislation.

2. Valero believes that only three minor modifications to S. 615 should be made.

First, Section 303 of S. 615 should be modified so that it is clear that the market-out provisions are to apply to gatherers and those providing gathering services as well as producers. Currently under the NGPA sales by a "gatherer" are included within the definition of "first sale" and would be covered by the "market out" provisions of S. 615. However, a number of companies essentially provide gathering services but are classified as intrastate pipelines. These companies purchase gas in the field from producers and have contracts with pipelines to resell to those pipelines all, or a particular percentage, of the gas purchased in the field by that company. The fee that these companies receive is based upon the volume of gas sold to the pipeline. The more gas they can purchase in the field and redeliver to the pipeline, the more money they make, regardless of what the gas actually costs. These companies have no incentive to exercise "market outs" with their producers since the loss of any gas reserves would simply mean less revenue. Therefore, the pipeline purchaser from these companies needs the ability to "market out" under these contracts in order to be able to control its purchased gas costs. The suggested language to implement this change to Section 303 of S.615 is attached.

Second, Valero believes that the "equal access" provisions of the bill should apply only to pipelines and local distribution companies. Valero is considering appropriate language to accomplish this result and will furnish a proposed amendment when completed.

Third, Valero believes that it should be made clear that when a purchaser limits the take-or-pay obligation, the purchaser gives up neither his rights to take the full gas stream when necessary nor his right to all deliveries from the well or interest in question during the life of the contract. Valero is considering appropriate language to accomplish this result and will furnish a proposed amendment when completed.

3. If the amendments you support are not adopted, and if you had to vote up or down on S. 615, would you support it or would you support a continuation of the existing law?

3. Valero would support S. 615 if the choice were between S. 615 and existing law.

4. Do you believe that the producing states should be able to control prices for intrastate sales, as they now can under Section 602(a) of the NGPA? If so, how does that square with your opposition to price controls generally.

4. Valero believes that the free market should be allowed to operate to set the price of gas and that this

operation should not be hindered by either state or federal statutory or regulatory constraints.

5. Do you believe that producers should be insulated from suits by royalty owners if they voluntarily renegotiate their contracts.

5. Yes.

6. Do you believe that S. 615 provides a realistic amount of time for contract renegotiation before the market-out provision would take effect? What if the new bill is not enacted until mid-1984? How much time would be necessary then?

6. Valero believes that upon enactment renegotiation with producers or groups of producers will proceed without delay and that the January 1, 1985, date is realistic regardless of the exact date of enactment.

7. If controls are removed in the manner proposed by the Administration, or in any other manner, will prices rise or fall? By how much? Why?

7. If controls are removed, Valero believes that prices will tend to moderate and move with the price of No. 6 fuel oil. Ultimately natural gas well head prices should stabilize at approximately 80% of No. 6 fuel oil. Currently this would result in some reduction of gas prices.

8. If prices fall, how much will production fall?

8. If prices of natural gas fall to levels which more closely track its commodity value, gas production will actually increase. This is because those industrial consumers which have already shifted from natural gas to fuel oil will turn back to natural gas, thereby increasing levels of natural gas production. As far as exploration activity for new gas is concerned, a reduction in price back to the level of approximately $3.00 should have little, if any, effect on overall levels of exploration. Lower prices will mean that there will be less emphasis on developing gas from tight sands formations and gas below 15,000 feet, but this shift in emphasis has already occured because few, if any, pipelines are willing to pay incentive prices for this gas. Currently, the ability to move gas and

sustain high takes is more important than price in effecting the level of drilling activity.

9. If prices rise, how much will production rise?

9. Gas production will decrease if prices rise because there will be more fuel switching to alternate fuels. This decrease in production will also discourage drilling activity because the current excess of deliverability will be exacerbated.

10. Can you explain specifically and in detail why prices are not falling now?

10. Valero believes that gas prices are not dropping largely because the NGPA Section 104 cushion allows some pipelines to bid and continue to pay more than the market price for gas. These prices have triggered indefinite price escalator clauses in other contracts and have kept the price higher for all pipelines. The lack of "market out" provisions coupled with the built-in escalator in NGPA pricing to which many contracts are tied have also contributed to the inability of gas prices to respond to market conditions.

11. Giving a broad interpretation to the Natural Gas Act and the Natural Gas Policy Act, what authority might the FERC have to remove barriers to the fall prices? Could its authority under Section 601(c) of the NGPA, concerning limitations on passthroughs in the event of "fraud, abuse, or similar grounds", be interpreted to provide such authority? Could its rule-making authority under Section 501(a) of the NGPA be used to rectify the situation?

11. It appears that the FERC does have some authority to remove barriers to a drop in prices but that action by the FERC may not be the effective action which is required in today's conditions. Any attempt by the FERC to require or facilitate the fall in prices could come only after protracted litigation during which time various parties would be forced to try numerous issues necessary to protect their interests.

SUGGESTED LANGUAGE FOR SECTION 303 OF S.615

"Section 316 - MARKET-OUT PROVISION."

"(a) GENERAL RULE - Beginning January 1, 1985, either party to a contract for either the first sale of natural gas or a subsequent sale of gas from specific gas reserves which was in effect on the date of enactment of the Natural Gas Consumer Regulatory Reform Amendments of 1983 and which contract was not thereafter amended shall have the right to terminate the contract under the following conditions:"

* * *

QUESTIONS FROM VARIOUS REPUBLICAN MEMBERS OF THE COMMITTEE

1. Please provide the Committee with the specific legislative language necessary to implement those changes to the Administration's bill, S. 615, that you identified in your oral and written testimony as being necessary. Also please provide the Committee a justification for each of your recommended changes.

1. See response to Question 2 from the QUESTIONS FOR PANEL THREE.

2. Please provide the Committee with your estimate of the amount by which gas prices would increase or decrease, both over the short-run and over the long-run if S. 615 is enacted.

2. See response to Question 7 from the QUESTIONS FOR PANEL THREE.

3. Please provide the Committee with your estimate of the amount by which gas supplies and gas reserves would increase or decrease, both over the short-run and over the long-run, if S. 615 is enacted.

3. See response to Question 8 from the QUESTIONS FOR PANEL THREE.

4. Please provide the Committee with your estimate of the level of the gas cap if S. 615 were enacted today and the amount by which the cap would reduce average purchased gas costs.

4. If S. 615 were enacted today we believe the price of new gas purchased would probably fall in the $3.00 - $3.25 level with periodic price redetermination based upon the average price of No. 6 fuel oil. However if, as currently proposed under S. 615, the gas cap included renegotiated prices the cap could be significantly lower than that figure depending upon how much old 104 gas was renegotiated during any particular three month period and how quickly that renegotiated price was phased up to market clearing levels.

5. Some witnesses appearing before the Committee have suggested that enactment of S. 615 would bring about chaos in the gas market. Please provide the Committee with your assessment of the prospect of that occurring.

5. Quite the contrary, the enactment of S. 615 would restore order and stability to the gas market. In fact, the gas market is in chaos today with some gas selling in excess of $9.00 while other gas is sold for less than $.50. S. 615 would, within a very short time, return all gas to its approximate commodity value and eliminate the distortions which were the inevitable result of certain provisions contained in the NGPA. After a short transition period, there is no reason to believe that S. 615 would not provide a system under which the price of natural gas, like every other commodity, would respond to free market forces.

Howard

THE WILLIAMS COMPANIES
ONE WILLIAMS CENTER · TULSA, OKLAHOMA 74172

VERNON T. JONES
EXECUTIVE VICE PRESIDENT

Official Committee File

March 17, 1983

SENATE COMMITTEE ON
ENERGY AND NATURAL RESOURCES
RECEIVED
MAR 23 1983
WASHINGTON, D.C. 20510

Honorable James A. McClure
Chairman, Committee on
Energy & Material Resources
United States Senate
Washington, D. C. 20510

Dear Chairman:

In response to the questions I have received from Committee Staff, I have enclosed my answers on behalf of The Williams Companies. I once again appreciate the opportunity to have appeared before the Committee on legislation which we believe is particularly important to our Nation's future.

Sincerely,

Vernon T. Jones

VTJ:cc

Enclosure

I.
Questions for Panel Three
March 10, 1983

QUESTION NO. 1:

Do you support any of the bills pending before the Committee on Energy and Natural Resources? If so, please indicate which one(s).

Response: As a major gas consumer, pipeline and producer, The Williams Companies supports S.615. We believe that S.615 affords the most effective and realistic means of protecting gas consumers from further artificial (i.e., not dictated by supply/demand constraints) increases in gas costs while at the same time providing gas producers with sufficient incentives to develop adequate new reserves to meet future requirements.

QUESTION NO. 2:

Please provide the Committee with specific statutory language for any amendments you would like to see adopted if the Committee were to use S.615 as mark-up vehicle for natural gas legislation.

Response: The time available before the record is closed does not permit us to draft sufficiently comprehensive language to address all of our concerns. Williams is working on such language, however, and will provide it to the Committee when completed.

QUESTION NO. 3:

If the amendments you support are not adopted, and if you had to vote up or down on S.615, would you support it or would you support a continuation of the existing law?

Response: Clearly, we would support S.615.

QUESTION NO. 4:

Do you believe that the producing states should be able to control prices for intrastate sales, as they now can under Sec. 602(a) of the NGPA? If so, how does that square with your opposition to price controls generally.

Response: As an intrastate consumer and pipeline, we historically have strongly supported the rights of individual states to govern transactions occurring solely within their borders. We nevertheless recognize, however, that, in certain matters of overriding national concern, national policy necessarily must supercede individual state interests. If we were convinced that any gas legislation adopted by the Congress effectively and completely would eliminate all forms of discrimination and preference between interstate and intrastate consumers, pipelines and suppliers, and thereby eliminate the dual market which currently exists, we would support the preemption by such legislation of any further actions in the areas so affected by the individual states.

QUESTION NO. 5:

Do you believe that producers should be insulated from suits by royalty owners if they voluntarily renegotiate their contracts?

Response: It is Williams' experience as a producer and pipeline that one of the most material inhibitions to the renegotiation of gas purchase contracts between producers and pipelines is the concern by producers that any such renegotiation, in the absence of such renegotiations being compelled on an industry-wide basis, could result in such producers individually being held liable for any negative financial consequences resulting therefrom in suits brought by their royalty owners, drilling fund partners, bankers, or co-working interest owners. Williams believes that, if the renegotiation of existing gas contracts are to be facilitated, these concerns must be mitigated. Williams thus supports legislation insulating those producers who voluntarily renegotiate their contracts from liability to such other parties if the producers concerned negotiate in good faith and accept, as a result, renegotiated provisions which are reasonable and prudent under the circumstances.

QUESTION NO. 6:

Do you believe that S.615 provides a realistic amount of time for contract renegotiation before the market-out provision would take effect? What if the new bill is not enacted until mid-1984? How much time would be necessary then?

Response: As a pipeline and producer, we believe that nine months is the minimum amount of time within which consumers, pipelines and producers can reasonably be expected to absorb the meaning of S.615, prepare an adequate business response and strategy in light thereof, implement that strategy, and achieve the resolution of all outstanding issues in all of the various contractual relationships which must be addressed. Assuming that S.615 is enacted by the end of 1983, the legislation will provide sufficient time to accomplish these ends.

Passage of the legislation after the first quarter of calendar year 1984, however, will, in Williams' view, unreasonably compress the time within which consumers, pipelines, and producers will be expected to resolve their differences other than under the threat of a "market-out." In such an event, Williams does not support the extension of the date of deregulation (January 1, 1986) in order to provide adequate time for such renegotiations. Rather, Williams urges that the "market-out" window be shortened to the degree necessary to preserve the targeted date of deregulation. In Williams' view, such a compression of the "market-out" window will have no detrimental effect on the reordering of the industry. The parties to the contracts so subject to "market-outs" likely will have determined during the preceding renegotiation period whether an agreement to continue their relationship is probable, and, thus, the decision whether to "market out" will be made in a relatively short period.

QUESTION NO. 7:

If controls are removed in the manner proposed by the Administration, or in any other manner, will prices rise or fall? By how much? Why?

Response: From its perspective as a major consumer of gas in Arkansas and Oklahoma, and as a major intrastate pipeline and consumer of gas in Louisiana, it is Williams' experience that the price of gas already has exceeded its current market-clearing value in each of these states. In Williams' experience, the reduction in revenue to pipelines and producers serving each of these states caused by the load loss which already has occurred (or very soon will occur) is of such a magnitude so as to provide immediate incentives to renegotiate the existing relationship.

Given such a circumstance, Williams believes that, if gas is released from the artificial constraints currently restricting its ability to respond to market signals, the current price level will decrease to the level necessary for the recovery of the lost load. In Williams' experience, it believes that, under current economic conditions, the delivered price of gas (at the burner tip) to industrial consumers in the markets in which Williams is involved would decline over time from the current price levels of \$3.40/MMBtu (Oklahoma), \$3.73/MMBtu (Louisiana), and \$3.32/MMBtu (Arkansas) to approximately \$3.00-3.25/MMBtu. This market-clearing delivered price would equate, roughly, to a wellhead price in the range of \$2.60-2.85/MMBtu.

QUESTION NO. 8:

If prices fall, how much will production fall?

Response: Williams has performed no analysis of the amount by which production levels will fall as the price for gas declines to market-clearing levels. Williams would note parenthetically, however, that it is not convinced that current production levels will decline necessarily to any significant degree. In Williams' experience, current exploration and production efforts are adversely affected because of the uncertainty and confusion currently prevailing in the industry. Williams would assert that the market stability which will result from the enactment of legislation may well serve to spur industry recovery.

In any event, Williams is convinced that, at the price level at which it expects gas to clear in the market, there will be adequate incentives to producers (given the expected level of "finding costs") to elicit sufficient supplies to meet demand. Simply put, producers will be able to earn a sufficient return on their investment at the price levels expected to exist in a free market to induce them to develop adequate supplies to meet demand.

QUESTION NO. 9:

If prices rise, how much will production rise?

Response: Under current market conditions, Williams does not believe that higher prices will result in any increased production. As stated in response to question number 7, Williams believes that gas already has exceeded its market-clearing level in each of the states in which Williams is located. Under current conditions, therefore, Williams believes that further increases in prices (as is currently occurring under the NGPA) will lead only to increasing load loss, and higher curtailments of both old and new production.

QUESTION NO. 10:

Can you explain specifically and in detail why prices are not falling now?

Response: Williams' perception as to the causes for the current pricing disorders which exist in the gas industry, and their derivation, are outlined on pages 11 through 15 of Williams' prepared direct testimony, a copy of which is included herewith as Attachment A.

QUESTION NO. 11:

Giving a broad interpretation to the Natural Gas Act and the Natural Gas Policy Act, what authority might the FERC have to remove barriers to the fall of prices? Could its authority under Section 601(c) of the NGPA, concerning limitations on passthroughs in the event of "fraud, abuse, or similar grounds," be interpreted to provide such authority? Could its rulemaking authority under Section 501(a) of the NGPA be used to rectify the situation?

Response: As Williams noted in its testimony, the essential problem faced by the natural gas industry currently is the combined effect of the rigidity of the regulatory scheme imposed by law and the contractual provisions which have resulted therefrom. Until the "gridlock" which has resulted from such a scheme and such provisions is alleviated, the market will not be able to readjust so as to reflect current economic reality.

Under current law, the FERC does not have the ability to alleviate this "gridlock." Even assuming that the Commission had broad powers under NGPA §601(c), the exercise of those powers to deny the passthrough of certain gas costs to consumers would address only part of the problem, and then only for a relatively short period.

The pipelines would still be required by contract to pay producers the prices which the FERC so excluded from rates. The FERC could not reach that obligation under any of its authorities.

Moreover, the FERC would have no authority to alleviate the increasing costs faced either by intrastate or interstate direct sale consumers. Thus, at best, only a portion of the consumers subjected to artificially high prices would be affected. Further, such a solution would ultimately inure to the detriment of consumers as those pipelines which were forced to internalize increasing costs became less and less able to continue to provide adequate service to their customers.

Certainly, there are steps which the FERC can and has taken to mitigate the degree of the disorders currently affecting the industry. For example, by permitting interstate pipelines to make "off-system" sales to intrastate pipelines, the Commission has enabled intrastate pipelines in many instances to acquire more economically practicable supplies (to the benefit of their customers) than otherwise would have been the case. Such steps, however, only mitigate the symptoms of the problem currently faced by the industry -- they can not and will not alleviate the basic cause of problem. Legislation is required for that purpose.

II.
Questions for Mr. Jones

QUESTION NO. 1:

At approximately what price does the price of natural gas become prohibitively expensive for the production of ammonia for fertilizers?

Response: The market-clearing price for natural gas used in the production of ammonia fertilizer differs from region to region, and indeed, from plant to plant, depending upon (a) the proximity of the plant both to the major fertilizer market areas (primarily the Midwest) and the Gulf Coast, and (b) the relative efficiency of the plant. Proximity to the Gulf Coast is a factor because the Gulf Coast is the F.O.B. point for most imported ammonia and is the point in the U.S. where ammonia prices are the lowest.

Recent testimony given by Dr. Raymond Daniel, Vice President, Chase Econometrics, before the Oklahoma

Corporation Commission (the state public utilities agency) in Commission Docket No. 28069 indicates that, in the current economic environment, the average market-clearing value for gas to the ammonia facilities located in that state (which, roughly, account for 15 percent of total domestic capacity) is approximately $2.50/MMBtu (long run) and $3.30/MMBtu (short run) delivered at the plant. The long run market-clearing value is defined by Dr. Daniel as the price of gas necessary to enable the average Oklahoma fertilizer producer, in the current economic environment, to recover his operating costs and earn a reasonable rate of return on his investment. The short run market-clearing value is defined by Dr. Daniel as the price of gas necessary to enable the average Oklahoma fertilizer producer, in the current economic environment, to recover solely his variable costs of production (exclusive of depreciation, interest or profit). Dr. Daniel further described the long run price as that necessary to provide sufficient incentives to the fertilizer producer to induce continued investment in his operation with the expectation of remaining in business over the long run. The short run price, simply stated, was described as that necessary to avoid immediate plant shut-downs.

Largely because of its closer proximity to the Gulf Coast, the market-clearing value of gas to the Louisiana ammonia industry (which, roughly, accounts for 34 percent of total domestic capacity) is appreciably lower than that experienced in Oklahoma. Although no data has been developed for the Louisiana industry as extensive as that presented for Oklahoma, Williams' preliminary analysis indicates that, in the current economic environment, the market-clearing value of gas to the Louisiana facilities on average is roughly 25¢-30¢/MMBtu below that to the Oklahoma facilities.

QUESTION NO. 2:

After decontrol, would the market clearing price for natural gas be low enough to continue the domestic production of ammonia for fertilizer?

Response: From its perspective as a pipeline and producer, Williams believes that adequate incentives will exist at the price levels discussed in response to question number 1 to explore for, produce and transport sufficient quantities of gas to meet the requirements of the ammonia fertilizer industry. Given the importance of the fertilizer industry to the producers of both Oklahoma (where fertilizer accounts for 14 percent of total consumption) and Louisiana (13 percent), it may be expected that over the long-run suppliers in those states will meet the fertilizer industry's market-clearing price levels in order to preserve the fertilizer load.

In any event, it currently appears that, once the gas market becomes stabilized, the market-clearing value of gas generally in the economy will be roughly equal to that applicable to the fertilizer industry. Thus, the fertilizer industry should be able to acquire in the market adequate supplies of gas to meet its needs at price levels which will permit the industry to remain economically viable.

III.

Questions from Various Republican Members

QUESTION NO. 1:

Please provide the Committee with the specific legislative language necessary to implement those changes to the Administration's bill, S.615, that you identified in your oral and written testimony as being necessary. Also please provide the Committee a justification for each of your recommended changes.

Response: The time available before the record is closed does not permit us to draft sufficiently comprehensive language to address all of our concerns. Williams is working on such language, however, and will provide it to the Committee when completed.

QUESTION NO. 2:

Please provide the Committee with your estimate of the amount by which gas prices would increase or decrease, both over the short-run and over the long-run if S.615 is enacted.

Response: From its perspective as a major consumer of gas in Arkansas and Oklahoma, and as a major intrastate pipeline and consumer of gas in Louisiana, it is Williams' experience that the price of gas already has exceeded its current market-clearing value in each of these states. In Williams' experience, the reduction in revenue to pipelines and producers serving each of these states caused by the load loss which already has occurred (or very soon will occur) is of such a magnitude so as seriously to impair the long-term financial stability of such entities.

Given such a circumstance, Williams believes that, if gas is released from the artificial constraints currently restricting its ability to respond to market signals, the current price level will decrease to the level necessary for the recovery of the lost load. In Williams' experience, it believes that, under current economic conditions, the delivered price of gas (at the burner tip) to industrial consumers in the markets in which Williams is involved will decline over time from the current price levels of $3.40/MMBtu (Oklahoma), $3.73/MMBtu (Louisiana), and $3.32/MMBtu (Arkansas) to approximately $3.00-3.25/MMBtu. This market-clearing delivered price will equate, roughly, to a wellhead price in the range of $2.60-2.85/MMBtu.

QUESTION NO. 3:

Please provide the Committee with your estimate of the amount by which gas supplies and gas reserves would increase or decrease, both over the short-run and over the long-run, if S.615 is enacted.

Response: Williams has performed no analysis of the amount by which production levels may rise or fall if S.615 is enacted. Williams notes that, even if the enactment of S.615 results in lower average wellhead prices, it may be that current production levels will remain stable. In Williams' experience, current exploration and production efforts are adversely affected by the uncertainty and confusion currently prevailing in the industry. Williams would assert that the market stability which will result from the enactment of legislation may well serve to spur industry recovery.

Although it has performed no specific studies of increases or decreases in production levels, Williams nevertheless is convinced that, at the price level at which Williams expects gas to clear in the market, there will be adequate incentives to producers (given the expected level of "finding costs") to elicit sufficient supplies to meet demand. Simply put, producers will be able to earn a sufficient return on their investment at the price levels expected to exist in a free market to induce them to develop adequate supplies to meet demand.

QUESTION NO. 4:

Please provide the Committee with your estimate of the level of the gas cap if S.615 were enacted today and the amount by which the cap would reduce average purchased gas costs.

Response: It is Williams' experience as a pipeline and producer that the average price for new gas supplies currently being offered at the wellhead is in the range of $2.65-2.90 MMBtu. To some degree, such price levels are driven by the need to create a reverse "cushion" against the above market-clearing prices currently being paid for previously contracted new gas reserves, but Williams believes that such price levels are representative also of the long-run market-clearing value of gas at the wellhead.

Williams believes that, if S.615 is enacted in its current form, pipelines and producers will have sufficient incentive to begin immediately the renegotiation of the pricing provisions applicable to both their above market-clearing new gas supplies and their below market-clearing old gas supplies. Given the strictures imposed upon the pipelines by the PGA limitation contained in the bill, however, the pipelines will be encouraged to negotiate an increase in the price of their "old gas" supplies only once they are able to negotiate a corresponding reduction in the price of their "new gas" supplies. As a result, on balance Williams believes that the cumulative impact of these renegotiations will be to derive a weighted average renegotiated price very near the market-driven price resulting from the negotiation of new gas contracts.

Assuming this analysis to be correct, Williams believes that under current economic conditions the gas cap thus will balance nationally roughly in the range of $2.65-2.90/MMBtu. The effect which the gas cap will have on the average price of gas paid by consumers will differ markedly between pipeline systems, however.

For example, the predominant share of the gas which Williams' intrastate pipeline subsidiaries acquire in the field currently is priced at or very near the NGPA §102 level (currently, $3.44 inclusive of severance tax). If S.615 is adopted in its current form, once the gas cap takes effect, almost all of the gas so acquired will be reduced to the gas cap level. As a result, the average price of gas assessed Williams' customers also will drop to the same level. Assuming that Williams' projection that the gas cap will balance out in the $2.65-2.90/MMBtu range (inclusive of severance tax) is correct, the consequence of the imposition of the gas cap will be a reduction in the delivered price of gas to Williams' customers of approximately 15-20 percent.

On the other hand, a large share of the gas which the supplier to one of Williams' fertilizer facilities currently is acquiring in the field is priced at or very near the NGPA §109 level (currently, $2.44 inclusive of severance tax). A relatively significant share of the remainder of its gas supplies qualifies as NGPA §107 gas and is acquired in the field at approximately $9.95/MMBtu. Although S. 615, if adopted in its current form, will have an impact on the midrange of such pipeline's supplies, given the immediate irrelevance of the gas cap to two of the larger types of supply, the effect of the cap on the average price of gas incurred by Williams' as a result of purchases made from that supplier will be limited.

QUESTION NO. 5:

Some witnesses appearing before the Committee have suggested that enactment of S. 615 would bring about chaos in the gas market. Please provide the Committee with your assessment of the prospect of that occurring.

Response: On balance, we believe that, although we recognize that the passage of S.615 may cause some confusion to exist in the market as the industry seeks its natural balance, the confusion thus experienced will be less than that which will result under any other alternative, including allowing current law to continue "as is."

Williams understands that the enactment of S.615 will result in a substantial reordering of the gas market as the commodity seeks its market clearing level and as producers, pipelines and consumers readjust to reflect more accurately in their relationships economic reality. It is no doubt true that such reordering will be difficult and that some pipelines, producers and consumers will be burdened as the industry readjusts its relationships. Certainly, consumers long accustomed to artificially under-priced gas and producers recently exposed to artificially over-priced gas will experience some discomfort as the market levels out.

Williams submits, however, that the confusion which will result from the enactment of S.615 will be much less chaotic than that which will result if either the NGPA is left "as is" or if the Congress moves substantially to re-regulate the industry. As we have described, it has been Williams' experience that the NGPA already is creating substantial chaos in the industry. As prices increase to above market-clearing levels, consumers are being forced artificially to substitute other forms of energy or feedstock for gas. As gas markets decline, producers are being compelled to curtail any further exploration or production efforts. We believe that an equal degree of chaos will result if the Congress moves to re-regulate gas. As we have experienced before, consumers receiving the under-valued commodity will over-consume and producers supplying the under-valued commodity will under-produce.

ENERGY AND NATURAL RESOURCES COMMITTEE
HEARING ON
PENDING NATURAL GAS LEGISLATION
FRIDAY, MARCH 11, 1983
9:30 a.m.
ROOM SD-106

WITNESS LIST

The Honorable Charles Percy

The Honorable Arlen Specter

National Governors Association
Represented by: The Honorable Robert D. Orr
Governor of Indiana

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Panel 1

Mr. Nick J. Bush, President
Natural Gas Supply Association

Mr. Kye Trout, Jr., Chairman of the Board
Independent Petroleum Association of America

Domestic Petroleum Council
Represented by: Mr. Perry O. Barber, Jr.
General Counsel
Pennzoil

Panel 2

Mr. Gary Dage
Independent Gas Producers Committee

Ms. Britann Wallace, Chairman
Natural Gas Committee
Independent Petroleum Association of Mountain States

Mr. Rex Fuller, Chairman
National Energy Policy Committee
Texas Independent Producers and Royalty Owners

Mr. John McMillian
Northwest Energy Company

Mr. David W. Wilson, President
Coalition for Equal Access

Panel 3

Mr. George H. Lawrence, President
American Gas Association

Associated Gas Distributors
Represented by: Mr. Charles Zeigler, President
Chief Executive Officer
Public Service Company
of North Carolina

Mr. C. W. Cooper, Chairman
United Distribution Companies

City of Albany, Georgia
Represented by: Mr. Walter Rodemann, Manager
Water, Gas & Light Commission

Mr. Jerome McGrath, President
Interstate Natural Gas Association of America

QUESTIONS FROM VARIOUS REPUBLICAN MEMBERS OF THE COMMITTEE

1. Please provide the Committee with the specific legislative language necessary to implement those changes to the Administration's bill, S. 615, that you identified in your oral and written testimony as being necessary. Also please provide the Committee a justification for each of your recommended changes.

2. Please provide the Committee with your estimate of the amount by which gas prices would increase or decrease, both over the short-run and over the long-run if S. 615 is enacted.

3. Please provide the Committee with your estimate of the amount by which gas supplies and gas reserves would increase or decrease, both over the short-run and over the long-run, if S. 615 is enacted.

4. Please provide the Committee with your estimate of the level of the gas cap if S. 615 were enacted today and the amount by which the cap would reduce average purchased gas costs.

5. Some witnesses appearing before the Committee have suggested that enactment of S. 615 would bring about chaos in the gas market. Please provide the Committee with your assessment of the prospect of that occurring.

QUESTIONS FROM REPUBLICAN MEMBERS OF THE COMMITTEE

1. In the Independent Petroleum Association of America's opinion, what impact would the various proposals currently pending before the Committee*/ have on:

   --residential, commercial and industrial gas prices?
   --short-term and long-term gas supplies?
   --the financial situation of producers, pipelines and gas distribution cpmpanies?

2. In IPAA's opinion, to what extent and on what matters does the Federal Energy Regulatory Commission have the statutory authority to take action to address current and potential future problems in the gas market? Please provide the Committee with a detailed legal analysis of the FERC's authority. What actions would you recommend that the FERC take?

3. Your testimony notes that the IPAA represents about 8,000 independent gas producers. What would be the financial impact on the members of your association from a two-year freeze of wellhead prices with a rollback to August 31, 1982 price levels?

4. To what extent would a price freeze affect the exploration and production operations of your members?

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*/ S. 2074; S. 2892; S. 3028; S. 3054; S. 3069; S. 3070; S. 3076; S. 3088.

QUESTIONS FROM REPUBLICAN MEMBERS OF THE COMMITTEE

1. In the Natural Gas Supply Association's opinion, what impact would the various proposals currently pending before the Committee*/ have on:

   --residential, commercial and industrial gas prices?
   --short-term and long-term gas supplies?
   --the financial situation of producers, pipelines and gas distribution companies?

2. In NGSA's opinion, to what extent and on what matters does the Federal Energy Regulatory Commission have the statutory authority to take action to address current and potential future problems in the gas market? Please provide the Committee with a detailed legal analysis of the FERC's authority. What actions would you recommend that the FERC take?

3. The following statement appears on page 14 of NGSA's prepared testimony:

   > The deep-cushion pipeline will continue to have an advantage in bidding for uncommitted gas. In addition, it will have another advantage that did not exist under the NGPA. It would continue to have gas committed to its system without any obligation to purchase it. This gas may, in fact, be cheaper than uncommitted gas on which a shallow-cushion pipeline is bidding.

   Q. Would you please identify the gas that would be commited to the deep-cushion pipeline, and fully explain the facts and reasoning that support the statement contained in the paragraph.

4. If the Congress were to enact a law permitting pipelines to abrogate take-or-pay provisions in producer-pipeline contracts, but also permitting producers to sell to other purchasers the volumes of gas not taken as a result of the contract modifications, would the producers who could not sell those volumes be entitled to compensation for such lost sales, even though they retained the gas and were contractually free to sell it at a later date? If they are entitled to compensation, how would it be computed, and who would pay it?

MINORITY MEMBERS' ADDITIONAL QUESTIONS FOR NATURAL GAS HEARING RECORD

Witnesses Appearing March 11, 1983

QUESTIONS FOR PANEL ONE

1. What is your best estimate of what the new maximum lawful price for natural gas will be if the fuel cap provision in S. 615 is adopted?

2. What would that price be if only new contracts, and not renegotiated contracts, are included?

3. If S. 615 were adopted, what is your best estimate of how it would affect residential prices paid each year for the next five years? How would that compare with prices under the NGPA for the next five years?

4. Do you agree with the Administration's prediction that the average price of natural gas will decrease in the first year the bill is effective? Please provide the Committee with an analysis explaining why you agree or disagree with the Administration's prediction.

5. What analyses would you recommend the Committee review in order to obtain a reliable estimate of natural gas supply for the rest of the decade under the NGPA and under the Administration's proposal?

6. What analyses would you recommend we review to answer the same question with respect to the demand for natural gas by the various users of gas?

7. How soon would you expect the PGA passthrough limitation in S. 615 would begin to be a problem for the pipelines and thus for you?

8. If the passthrough limitation in S. 615 is adopted, how would you expect to treat payments you are contractually entitled to collect from a pipeline purchaser, but which could not be recovered by a pipeline through the PGA mechanism?

9. Do you support any of the bills pending before the Committee on Energy and Natural Resources? If so, please indicate which one(s).

10. Please provide the Committee with specific statutory language for any amendments you would like to see adopted if the Committee were to use S. 615 as a mark-up vehicle for natural gas legislation.

11. If the amendments you support are not adopted, and if you had to vote up or down on S. 615, would you support it or would you support a continuation of the existing law?

12. If the bill adheres to the desire most of you express by not extending the decontrol date, and if the bill is not enacted until say mid-1984, what sort of realistic prospect is there for any renegotiation to take place before the market-out option goes into effect?

13. If old gas is not deregulated by the final bill, would you support it?

14. How do you feel about leaving Sec. 602(a) of the NGPA intact? It allows States to set price controls for gas produced and sold in their own state. I assume you would all advocate repealing it, consistent with your policy statements in support of early decontrol of all natural gas.

15. What assurances are there that after 1/1/85 gas producers won't just unilaterally abandon old gas contracts and withhold supplies from the market until their price demands are met?

   a. Given the passthrough limitation, how could pipelines agree to these demands?

   b. How do you see this confrontation being resolved so as to keep needed supplies flowing?

16. How much old gas do you have either shut-in or being produced at less than the rate you would produce if old gas prices were deregulated? This question is important because the point is made on the third panel to testify that if old gas is deregulated, then new gas prices (or certainly deep gas prices) will come down, reducing the incentive for supply additions. So the basic question is, where can we expect the greatest supply additions -- from old gas or from new gas?

17. Do you support extension of the Administration's market-out provision to minimum bill contracts between pipelines and/or to contracts between pipelines and local distribution companies?

18. Could you please provide for the hearing record, for each of the largest four, eight and sixteen natural gas producers, for 1980, 1981 and 1982,

   a. income from sales of natural gas;

   b. income from production of crude oil;

   c. income from sale of refined petroleum;

   d. income from all other sources; and

   e. profits.

QUESTIONS FOR MR. BUSH

1. On page 10 of your statement you refer to the problem of depletion of old gas supplies and you state that on average 10% of the nation's gas supply is depleted and must be replaced each year. How much variation is there among producers in depletion rates of old gas? How would you suggest the depletion aspect be addressed in S. 615?

2. S. 615 provides that any renegotiated contract including any amended contract is no longer subject to Federal regulation, neither as to price or non-price aspects. Could you discuss the psychology of the producer in deciding whether to agree to an insignificant amendment to the contract but which would have the effect of deregulating the contract between the pipeline and producer?

3. During the course of your testimony, you mentioned the New Jersey gross receipts tax on natural gas. Please provide the Committee with a list of taxes on energy (gas, petroleum products, coal, or nuclear) imposed by State or local governments, indicating the tax rate, the gross receipts, and the party responsible for paying the tax.

RESPONSES OF NICHOLAS J. BUSH ON BEHALF OF THE NATURAL GAS SUPPLY ASSOCIATION TO ADDITIONAL QUESTIONS DIRECTED TO THE MEMBERS OF PANEL ONE AT HEARINGS BEFORE THE SENATE ENERGY COMMITTEE ON MARCH 11, 1983 BY MINORITY MEMBERS

1. It is virtually impossible to make an accurate estimate of what the precise new maximum lawful price will work out to be. Recent market experience would indicate a level well below the current Section 102 ceiling price.

2. It is the belief of most members of the Natural Gas Supply Association that the new price ceiling or "gas cap" will be lower for the inclusion of renegotiated contracts than the case would be if they were excluded. Renegotiated contract prices might frequently not be reflective of arm's length transactions, because they are arrived at within the context and framework of the pre-existing contract. For example, a gas producer with a 104 or 105 contract may be able to negotiate with his buyer to increase the price in graduated increments in return for additional consideration to the buyer. This will give the producer some relief from the earlier contract price and prevent premature abandonment, but the renegotiated price may still be far below market value. The graduated increments do not reflect the value of the gas package in the free market, and would distort the gas cap if included within it.

   Likewise, producers could agree to renegotiate downward certain relatively high priced gas, from, say, $7.00 to $5.00. In such a case the final renegotiated price would remain above market. The resulting renegotiated price would also be unreflective of new gas market conditions, and similarly should not be included in contract prices used to make-up the cap.

   The inclusion of all contract renegotiations in the gas cap could have other perverse results. Suppose that a purchaser and seller want to make a minor and technical change to a current contract: changing the gas delivery point or adding a well. The cap as currently drafted could discourage the making of such minor adjustments, because the contract would then be "amended" and its price included in the gas cap. The danger of distorting the gas cap by including prices in such renegotiated contracts far outweighs any benefit obtained from their inclusion.

3. It is evident that the "consumer protection" provisions of S. 615 will not permit any real dollar increase in the average purchased gas cost component of the residential burner tip price on a pipeline specific basis, through

January 1, 1986, above its pre-enactment level. Further, as previously stated, it is the view of the Natural Gas Supply Association that should S. 615 be enacted under current market conditions, at least the Section 102 price and all other categories which have gas exceeding what will be the cap price, excluding Section 107, will "rollback" to some level below that current level. Thus, the average purchased gas cost component of the burner tip price of each pipeline should decline in proportion to the magnitude of that "rollback" and the relative quantity of such gas in each pipeline's mix.

It should be noted, however, that S. 615 does not purport to deal with any aspect of the burner tip price for any natural gas user, beyond the average purchased gas cost of each user's pipeline supplier. Burner tip prices for all users will be affected by resale rate designs adopted for distributors and pipelines by appropriate regulatory authorities, the rates of return allowed each distributor or pipeline, such factors as the relative mix of imports and other supplemental supplies, load losses, minimum bill requirements in purchases between pipelines and between pipelines and distributors, excise, use or similar taxes levied by state and local authorities, the relative decline in available volumes of different priced gas for each pipeline, or how each pipeline manages its takes of each vintage of its available supply, etc.

4. Our answers to the foregoing questions indicate the general agreement of the Natural Gas Supply Association with the Administration's assertion that the average domestic field price of natural gas will go down from current levels subsequent to the adoption of S. 615. As previously stated, this would result from the level at which the "gas cap" settles under current market conditions and the pipeline passthrough limitation.

5. Professor Edward Erickson of North Carolina State University has prepared a supply model for the Natural Gas Supply Association which quantifies the gas supply response to various price scenarios. We would recommend that the Committee review the supply results obtained in this model under a scenario which assumes enactment of S. 615 and we will be happy to supply a summary of results.

6. At this point in time the Natural Gas Supply Association has no recommendation for the Committee as to what analyses it might review relative to an estimate of the demand outlook under S. 615, as compared to the NGPA.

7. The PGA passthrough limitation of S. 615 would have an immediate impact on the contracting and pricing practices of pipelines.

8. The answer to this question will depend upon the terms and conditions of each and every contract for the sale and delivery of natural gas between producers and pipelines.

9. As I have previously testified, the Natural Gas Supply Association supports S. 615 and strongly recommends adoption of two changes to facilitate achievement of its goals.

10. The Natural Gas Supply Association is currently reviewing appropriate amendatory language and will submit it to the Committee and its members when it has been approved by the Association membership.

11. Although it is the judgment of the Natural Gas Supply Association that changes to S. 615 are needed to improve its workability in achieving its intended goals, under the question as posed the Natural Gas Supply Association would support the adoption of S. 615 over the continuation of existing law.

12. The Natural Gas Supply Association would expect significant renegotiation of contracts between buyers and sellers to occur between the date of enactment and January 1, 1986, even should S. 615 not be enacted before mid-1984.

13. No.

14. It has been the assumption of the Natural Gas Supply Association that those states that have adopted state wellhead price controls since the enactment of the NGPA did so because of the disordering of natural gas markets in those states, as caused by the enactment of the NGPA. Thus, if all wellhead prices are decontrolled at the federal level the repeal of Section 602(a) of the NGPA would appear to be in order.

15. Any such assertion defies economic logic, or, at a minimum, demonstrates a total lack of understanding of the manner in which producers conduct their business affairs in the ordinary course of exploring for, producing and marketing oil and natural gas.

    As a result of declining crude oil prices and the recessed demand for natural gas and refined products, current cash flow to producers is down significantly. This in turn impacts adversely the ability of producers to service debt, arrange for credit, carry out ongoing and planned exploration and development projects, as well as earnings. As a consequence many producers are experiencing severe financial difficulty, a fact that is widely known.

    To believe that anyone would intentionally inflict such grief upon himself, when there is a demand for his product requires imagination.

More importantly such action by the producer would provoke lawsuits by land and royalty owners, putting at risk leases and in many instances placing the producer in open confrontation with state or federal regulatory authorities. Frequently the shutting in of a well for a prolonged period can result in mechanical problems that can be destructive of the producers investment.

In the vast majority of cases, wells producing from the same gas reservoirs are owned by a number of different producers. Therefore, it is seldom true that a single producer, or even a small group of producers, can shut-in a gas field.

If one producer were to shut-in his gas in a field, the gas would migrate underground through the gas reservoir and be produced by wells belonging to another producer. Thus each producer has a strong self-interest militating against shutting-in production.

In addition, a considerable portion of the gas produced today is produced in association with oil. If the gas well were shut-in, the producer would be forced to forego oil production as well, with obviously severe economic consequences. The producer's interest in maintaining his cash flow from both oil and gas will cause him to reject out of hand this hypothetical "option" of gas withholding.

16. The Natural Gas Supply Association, of course, has no natural gas either shut-in or in production.

It is difficult to imagine one intentionally "shutting-in" production when he has gas for sale at a variety of relatively low prices for which there is no demand. Any producer will develop and deliver that portion of the reserves in place for which he has demand and which his return on investment will justify.

It should come as no surprise that those producers who have chosen to invest heavily in so-called "high-cost" gas, such as deep deregulated gas, argue for a continuation of controls on gas to be forever regulated under the NGPA. Without the subsidy of below market priced regulated gas the above market prices paid for deep deregulated gas could not be sustained. It is clearly in the deep gas producer's interest that this subsidy continue.

On the other hand there are many who express opposition to the decontrol of "old" gas who make the same argument, yet have no direct economic interest in deep deregulated production. In this instance their logic is fuzzy to disingenuous. It is not gas priced below market that is creating the problems currently complained of in natural gas markets, it is that gas in the mix that is priced above market that has been challenged. The argument offered by many distributors, states, local public service commissions, consumers, many members of Congress and other detractors of the pipelines is that pipelines have acted imprudently to the extent they have heretofore contracted for large quantities of domestically produced gas, imports and LNG at prices above long term market clearing. Some would deny pipelines the full cost passthrough of such purchases currently. Virtually all in this group are insisting on strict limitation of pipeline passthrough so as to deny passthrough of above market prices paid thereafter by any pipeline. They criticize the FERC for permitting passthrough previously and implore the Congress to do something about it, now. One cannot have it both ways. In light of the political and economic environment in which pipelines have had to operate over the past year or more, the likelihood that any pipeline purchaser will pay above market prices for future supplies seems remote. Thus, the "incentive" argument falls of its own weight.

Given this fact, future natural gas policy should eschew the bestowing of ephemeral benefits upon favored producers and categories of production and emphasize instead supply maximization at the most efficient cost.

17. The Natural Gas Supply Association has no position on this question.

18. The Natural Gas Supply Association collects no information on the income and profit of its member companies. Accordingly, we have no data with which to respond to these questions; however, I have notified the relevant members of your interest in obtaining the information specified in question 18.

Answers to Questions for Mr. Bush

1. The Natural Gas Supply Association has no producer-specific information on depletion rates, but we would assume that individual depletion rates would be evenly distributed around the national average figure which we quoted. The optimum method of addressing the depletion aspect in S. 615 is to allow passthrough of increased pipeline costs due to the signing of new and renegotiated contracts, so long as the average cost from such sources does not exceed the gas cap.

2. The "psychology" of a producer faced with such a decision would depend upon his position as a party to the existing contract. On one hand, he might agree to an insignificant amendment because contract renegotiation under S. 615 would relieve him of the onus of federal price regulation. On the other hand, a producer might hesitate to agree to an

insignificant amendment because he would lose his right to market-out of the existing contract once it is "renegotiated." The decision made by a producer faced with such consequences would be determined by his own economic circumstances.

3. The Natural Gas Supply Association has not collected information of this type; the fact that New Jersey has a tax of this kind was brought to our attention by a third-party. We would recommend that the Committee approach the Congressional Research Service or a similar entity which would be better prepared to assist with this question.

Answers to Questions from various Republican Members

1. As indicated in our response to question 10, we are not able to provide amendatory language at this time.

2. We are unable to predict gas prices which would result from passage of S. 615; various supply and demand scenarios would yield divergent results. Some current gas prices would probably increase while others decreased, but it is impossible to quantify with any precision the aggregate impact.

3. Based on a supply model prepared by Dr. Edward Erickson of North Carolina State University, the Administration's bill will result in about four and one-half trillion cubic feet of additional gas production and five and one-half trillion cubic feet in reserve additions during the balance of this decade from forever-regulated categories, as compared to that under the NGPA. The Erickson model also shows that new gas production and reserve additions during the balance of this decade will be greater under the Administration's bill than under the NGPA: the Administration's bill produces about 5 trillion cubic feet of additional gas production and 7 trillion cubic feet of additions to reserves over that elicited under NGPA.

4. We are unable to predict the level of the gas cap if S. 615 were enacted today. We note, however, that recent new gas contracts have been signed at levels much less than the allowable Section 102 NGPA ceiling price.

5. Dire predictions of market chaos and widespread dislocations if S. 615 is enacted are greatly exaggerated. Any adjustment to the current regulatory environment will result in temporary dislocations in the market, as producers and purchasers take the steps necessary to prepare themselves for a totally deregulated gas market at the wellhead. But the market will stabilize once the initial period of adaptation has passed, provided that the legislation approved by the Congress allows needed adjustments to occur.

The chance that serious dislocations will result can be greatly reduced by approval of two NGSA-backed amendments to S. 615. These amendments will increase the flexibility of the regulations imposed during the transition to full decontrol, and will encourage renegotiation by the parties to reflect market conditions.

Modification of the gas cap to remove prices paid under renegotiated contracts will make the cap more reflective of the marketplace, eliminating distortions caused by renegotiated contracts which result from less than arms-length transactions. Changing the passthrough limitation to permit passthrough of prices paid under new and renegotiated contracts, so long as the average of such prices does not exceed the price cap, will protect consumers from excessive costs while allowing them to adjust to any tightening of the market in advance of the January 1, 1986 date for elimination of all price controls. Inclusion of these provisions in S. 615 as enacted will eliminate any existing danger of widespread market disruption resulting from passage of the Administration proposal.

Howard

Answers to Questions of

IPAA Witness Kye Trout, Jr.

Before the Senate Energy and Natural Resources Committee

March 11, 1983

SENATE COMMITTEE ON
ENERGY AND NATURAL RESOURCES
RECEIVED
MAR 23 1983
WASHINGTON, D.C. 20510

Answers to Minority Members Questions

1. First, let us say that according to S. 615, there is no maximum lawful price per se for natural gas as new and renegotiated gas contracts are decontrolled upon enactment date. We assume you are referring to the level of the cap, which may or may not be the maximum lawful price for purposes of existing contract pricing clauses. Based on recent sales of new gas, it would be below current Sec. 102 prices, but how much lower is impossible to predict.

2. Based on the above answer, it would be hard to say. But recognizing that volumes of gas to be renegotiated upwards are several times greater than so-called "high-ball" contracts which would be negotiated downwards, it would appear that the cap would be higher if only new contracts were incorporated into it.

3. No one can predict with any accuracy what burner-tip prices will be over the next five years under either S. 615 or NGPA. Since both deal only with the wellhead prices of domestically produced gas, we are talking about only one portion -- a minority portion at that -- of the burner tip component. Without knowing levels of demand, levels of industrial demand, levels of imports, future FERC attitudes on basic pipeline rates and future state PUC

actions on utility rate structure, there is no way to give you an answer. However, knowing that today's sharp increases are being driven by increased volumes of high cost and imported gas; absent major NGPA changes that shift is likely to continue, it seems only logical that absent those built in regulatory distortions, average burner tip prices will be lower than under NGPA. Of course that assumes that competing fuels won't experience sharp increases. But in today's market, natural gas is losing customers because NGPA regulation is skewed against demand-dictated price declines, we assume that in a free market demand would set the price and that price would have to meet competitive fuel prices.

4. Yes. However, as we stated above, whether those reduced wellhead prices result in reduced burner tip prices is beyond the control of producers. We see an alarming movement today in which governments move to tax away consumer benefits of reduced prices and we assume that revenue hungry localities will be tempted to add taxes as burner tip prices drop, just as all levels of government have moved in to tax gasoline.

5. Take your pick. We have found that such analyses are only as good as their assumptions and are outdated before they are printed -- so they are questionable at best. Remember, NGPA was based on the premise that we were about to run out of gas and there was little or no elasticity of either supply or demand. Don't make that mistake again.

6. Same as above.

7. Because it represnts a new, unknown element of doing business for a pipeline, it will be an immediate source of concern for them as to how agressively they move in the marketplace for new gas, etc. How real that concern

will be will depend on many unpredictable factors such as levels of demand, how quickly they can shed high cost gas and imported gas -- and their willingness to do so.

8. We would expect the contract to speak for itself. Pipelines must be accountable for their actions in some manner. Bad business decisions in other businesses end up costing stockholders' rates of return. Pipeline companies should be no different.

9. Yes. The principles of S. 615 are sound and should be adopted.

10. We will be doing that as mark-up proceeds, but are not prepared to respond at this moment in time.

11. Your question is not reasonable, because we are not likely to be confronted with such an option. A large segment of the Congress, through their introduction of a variety of bills makes it clear NGPA "as is" is not an option. Market conditions dictate that NGPA "as is" is not an option if consumer concerns are to be recognized and a viable gas industry is to be around in the future. But if only those two options were open, we would say yes to S. 615 and we believe more than three fourths of both Houses of Congress would too.

12. Such a delay would make the job more difficult, but it could be done. We find, however, that Congress has a responsibility to act more quickly than that. Many Members of the Senate were ready to act on two week's notice in December. To delay until mid-1984 would be viewed as a political maneuver unrelated to human or economic needs, and must be avoided.

13. No, because if the total problem is not dealt with, a bill minus forever regulated gas would not be a "final" bill and would represent only one more "band-aide" application to the gas problem. NGPA tried "half free, half slave" once, and has failed. We should not make that same mistake again.

14. We see no valid reason for leaving it intact. Absent NGPA, no state could impose such controls and have gas for their citizens anyway, so it probably is not a big factor.

15. Frankly, the withholding argument is so old and so discredited, we are surprised it is still around. Producers have obligations to royalty owners and to other partners that cannot be ignored. Such actions could result in loss of valuable leases. But most importantly -- at least as far as independents are concerned -- wells cannot be shut-in long for one reason -- loss of cash flow. A car dealer who sees a soft market does not shut his doors to wait for a better day. You're either in business or you're not, and we know of no one who could shut in much gas for very long and still be in business.

16. Frankly, we would find it easier to answer if you had asked us "how long is a string?" "New" gas and "old" gas have no status anywhere except in the NGPA. Each have the exact same characteristics and each are found at all depths in all types of geological formations in 33 states and on the offshore domain. Many "old" gas wells can and should be subjected to enhanced recovery techniques which are not possible today. We don't keep "old" workers' salaries low to make "new" workers salaries more attractive. We pay the replacement cost in today's market. Then, and only then can we know whether optimum production is being achieved. We don't use one category of any other commodity to subsidize another category of the same commodity. Why do we continute to think natural gas is different? If legislative rewards and penalties were not meted out to producers on the basis of where they drilled or how deep they drilled, but instead on where they could find the most gas at the most economic price, we would solve this problem once and for all. Elimination of all these distortions through deregulation is the only answer.

17. Frankly, as small independents, we have no expertise under which we can make a judgement either way on this subject.

18. We understand such information is available, but as representives of independents, we do not pose as statistical experts for large producers.

Answers to Republican Members Questions

1. We will be working with the Committee in the weeks ahead, but are not prepared at this time with specific, technically sound language.

2. We covered this in answering questions # 3, and # 4 of the Minority's questions. Generally, because of supply-demand factors, we assume prices would fall in the short term and rise modestly in the future as demand called for it. Likewise, price changes of competing fuels will continue to be a factor.

3. We believe supply and demand elasticity has proved itself in the gas business. Therefore, we believe supplies and reserves will increase and decrease in a future, free market depending on demand factors.

4. We gave our best answer we could under questions # 1 and # 2 of the Minority's questions.

5. It is hard to predict what will happen. If S. 615 were enacted soon, we believe we would go through a period of cautious renegotiations accelerating in pace as we neared the beginning of the "market out" stage. The longer final action is delayed, the more chaotic things could be simply due to the volume of contracts to be renegotiated. We do not share the concern that many hold that chaos would occur with massive "market out". We believe "market out" will occur under only a small amount of contracts. Both producers and pipelines will be afraid to play "chicken" too long. Most of us would agree that we have chaos in the gas market today. We are certain S. 615 would result in less than we are now experiencing.

Domestic Petroleum Council, Inc.
1101 Connecticut Avenue, N.W.
Suite 600
Washington, D.C. 20036
(202) 223-9321

March 21, 1983

SENATE COMMITTEE ON
ENERGY AND NATURAL RESOURCES
RECEIVED
MAR 23 1983
[illegible]
WASHINGTON, D.C. 20510

Howard Useem
Professional Staff Member
Energy & Natural Resources Committee
Energy Regulation Subcommittee
Senate Dirksen 306
Washington, D. C. 20510

Dear Howard:

Attached are Domestic Petroleum Council's answers to the questions you prepared for witnesses who testified at your natural gas hearings.

Please advise if you have further questions.

Cordially,

Marsha

Marsha Schramm
Executive Director

MS/mam

Attachment

RESPONSES TO QUESTIONS FROM DEMOCRATIC MEMBERS OF COMMITTEE

1. I do not have a specific estimate of what the new maximum lawful price for existing contracts will be; however, under current conditions it clearly would be less than the § 102 price.

2. I do not have a specific estimate on this question either, but directionally, it should be lower than the § 102 price but higher than in (1).

3. Because S.615 only addresses domestic wellhead prices and certain pipeline pass-through issues, it is impossible to predict the impact of the bill on prices at the burner tip. Those prices are impacted by the mix of gas purchased by a pipeline, including imports, pipeline load loss, rate designs adopted by the FERC and State Commission, the rates of return allowed pipelines and distributors by the appropriate regulatory agency, minimum bill requirements on competing pipelines and other factors simply not addressed by the bill. My testimony presented a clear example of these problems in the California market, where such things as high prices for imported gas, with high minimum pipeline take requirements, are displacing domestic supplies costing less than half the delivered price of the imported gas with resulting higher burner tip prices. The California problem has been compounded by the adoption of a rate design which prices industrial users' gas above market-clearing levels, driving those customers off the line. As a result, residential user rates are driven up as industrial load is lost. Thus, in an environment in which significantly cheaper, domestic gas is available, the price of gas in California is increasing at the burner tip.

4. We agree with the Administration that the average wellhead price will go down as a result of market forces and the operation of both the gas cap and the pipeline pass-through limitation. Assuming no further pipeline load loss, the reduction in average wellhead prices should lower prices at the pipeline level. However, for the reasons set out in my answer to Question 3, the burner tip price may not come down commensurately.

5&6. I have no recommendation to make on which supply estimates you wish to review. It does not require a computer study, however, to predict with assurance that supply and demand are adversely affected by wellhead price and other controls.

7. Obviously, the pass-through limitation becomes a fact of life for the pipeline upon enactment. Accordingly, I believe that it would be an immediate factor influencing a pipeline's contracting and purchasing practices and, consequently, would become an immediate factor for DPC member companies.

8. We expect the terms of our contracts to be honored by the pipeline, so the answer will depend on the contracts. As indicated in my answer to question 7, the existence of the limitation will immediately impact negotiations for new contracts.

9. We support the approach taken by the Administration in S.615, as I stated in my testimony.

10. We are not able to provide a response to this question by March 21, 1983.

11. Under the hypothetical question you pose, I would say S.615.

12. The provisions of S.615 provide a framework for renegotiating natural gas sales contracts and renegotiations are expected, even if the bill is not enacted until mid-1984. Any concern about delay could be ameliorated by amending S.615 to deregulate contracts executed or amended after the date of introduction. This may have the additional benefit of encouraging renegotiation now while Congress debates gas decontrol.

13. No.

14. It seems to me that the States with which I am familiar that have imposed price controls have done so because the NGPA created havoc or was perceived to do so. If gas is decontrolled at the federal level it would probably make sense to repeal § 602(a).

15. If I may say so again, those who advance this argument should know better. I cannot imagine all of the problems involved in ever attempting to shut in all of our wells. To name a few, we would cut off our own cash flow imperiling loans, credit, earnings, and ongoing projects. We would risk suits from royalty owners; we would risk loss of leases; we would risk drainage; we would risk loss of the wells through physical problems, such as water or sand incursion; we would have problems with the States who tax all of our production; and we would undoubtedly risk immediate and hostile action in the Congress and in the Administration, which has an arsenal of emergency powers.

16. Let me answer the basic question, as you describe it, first. There is no "old" gas or "new" gas except in an artificial environment such as the NGPA. In my view, you will obtain the best supply response if you remove the artificial distinctions.

There seems to be a misperception that "old" gas means wells already drilled before the NGPA and "new" gas means wells to be drilled. This is simply not true. Some new wells, and new gas, remain under permanent price controls; other new wells and new gas, as well as some intrastate "old" gas, are deregulated in 1985 or 1987. The same analysis applies to wells drilled yesterday. Apart from any question of "shut in" old gas, maintenance of price controls on "old" gas maintains artificial distinctions which inhibit drilling for certain types of additional supplies.

As to wells which have been drilled, the ceiling price and date of decontrol applicable to the category or categories the well happens to qualify for undoubtedly influences the priority for workovers and other stimulating techniques, but I would say that none are "shut in" waiting for deregulated prices.

You raise the question of whether the deregulation of old gas prices and the probable concurrent reduction in new gas prices will reduce the incentive for supply additions. We do not subscribe to the idea that artificial price restraints need to be placed on flowing gas in order to provide a proper incentive for the drilling of new wells. First, to drill at all requires cash, and the producer uses cash generated from sales of flowing gas to finance new drilling. To the extent that you reduce revenues from the sale of flowing gas you lessen the producer's cash position. A promise that he can make up the loss in revenue if he drills a certain kind of new well is not only poor economic theory, it is illusory.

Look at the bills pending to place new price controls on the "incentive" categories. We are now told, simultaneously, that too much incentive was given in the past (which now will be taken away) and that we must suffer a rollback in order to create "incentives" for the future in a system which holds the average prices artificially low. It is a wonderful subsidy system where revenues are taken away from some producers in order to pay more to other producers. Then that "incentive" is removed, after the investment has been made, to subsidize the creation of yet another "incentive." Such an approach destroys "incentives"; it does not create them.

Second, do you want to replace all gas supply with deep gas? Does it make any difference to the consumer whether the well is bottomed at 14,999 or 15,001? Do you want, say, only gas that is from a well 2.5 miles away from another well and not 2.4 miles? To pose the question answers it. You should want the producer to drill where he thinks (and the risk is on him, alone) he can maximize his reserves and production, whether it fits an NGPA category or not. It is not a given that on a national cumulative basis the greatest supply response can be obtained by drilling deep gas wells rather than by, for example, maximizing the recovery from existing wells through workovers or recompletions, or by drilling at shallower depths.

The artificial price distinctions create enormous supply inhibiting distortions in the production and exploration decisions of producers. The natural result has been that producers have been discouraged from selecting their drilling sites in order to maximize recoverable reserves but have instead been encouraged to drill high deliverability wells which qualify for NGPA incentive prices. As a consequence of decisions made in this artificial environment, the number of gas wells drilled increased after enactment of the NGPA. Even so, we still have not reversed the 14 year old trend of failing to add more reserves to the nation's supply of natural gas than we consumed during the year. It is unlikely that we will be able to reverse this trend until these artificial distinctions are completely removed.

Finally, subsidizing some gas at above market clearing levels at the expense of other gas inevitably leads to market chaos. The system self-destructs, as the NGPA is doing, when the "subsidized," above market clearing level gas--such as deep gas--takes a disproportionate share of the volume and price.

It is true that with the elimination of the current "subsidy," there may be some reallocation of revenue among producers. Nevertheless, the overwhelming majority of producers do not ask for subsidized drilling, for we know based on past events that the subsidy is temporary and therefore illusory. Rather, we ask that we be allowed to collect a market clearing price for all of our gas. We will then be encouraged to look for the most economically producible gas. This, in turn, makes it possible to keep prices lower and more stable than any statutory scheme whereby supply and demand are regulated.

17. We do not advocate extention of the Administration's market-out provision to minimum bill contracts between pipelines and/or to contracts between pipelines and local distribution companies.

18. The Domestic Petroleum Council does not have this information.

RESPONSES TO QUESTIONS FROM REPUBLICAN MEMBERS OF COMMITTEE

1. As noted in our response to question 10 from the minority members, we are not able to provide a response to this question by March 21, 1983.

2. Please see our response to questions 1 through 4 from the minority members.

3. Please see our response to questions 5, 6 and 16 from the minority members.

4. Please see our response to questions 1 through 3 from the minority members.

5. As is evident from my previous answers, I think an approach such as that embodied in S. 615 is the type needed to extricate us from the existing chaos under the current scheme of regulation.

QUESTIONS FROM VARIOUS REPUBLICAN MEMBERS OF THE COMMITTEE

1. Please provide the Committee with the specific legislative language necessary to implement those changes to the Administration's bill, S. 615, that you identified in your oral and written testimony as being necessary. Also please provide the Committee a justification for each of your recommended changes.

2. Please provide the Committee with your estimate of the amount by which gas prices would increase or decrease, both over the short-run and over the long-run if S. 615 is enacted.

3. Please provide the Committee with your estimate of the amount by which gas supplies and gas reserves would increase or decrease, both over the short-run and over the long-run, if S. 615 is enacted.

4. Please provide the Committee with your estimate of the level of the gas cap if S. 615 were enacted today and the amount by which the cap would reduce average purchased gas costs.

5. Some witnesses appearing before the Committee have suggested that enactment of S. 615 would bring about chaos in the gas market. Please provide the Committee with your assessment of the prospect of that occurring.

MINORITY MEMBERS' ADDITIONAL QUESTIONS FOR

NATURAL GAS HEARING RECORD

Witnesses Appearing March 11, 1983

QUESTIONS FOR PANEL TWO

1. What is your best estimate of what the new maximum lawful price for natural gas will be if the fuel cap provision in S. 615 is adopted?

2. What would that price be if only new contracts, and not renegotiated contracts, are included?

3. If S. 615 were adopted, what is your best estimate of how it would affect residential prices paid each year for the next five years? How would that compare with prices under the NGPA for the next five years?

4. How soon would you expect the PGA passthrough limitation in S. 615 would begin to be a problem for the pipelines?

5. If the passthrough limitation in S. 615 is adopted, how would you expect to treat payments you are contractually entitled to collect from a purchaser, but which could not be recovered by a pipeline through the PGA mechanism?

6. Do you support any of the bills pending before the Committee on Energy and Natural Resources? If so, please indicate which one(s).

7. Please provide the Committee with specific statutory language for any amendments you would like to see adopted if the Committee were to use S. 615 as a mark-up vehicle for natural gas legislation.

8. If the amendments you support are not adopted, and if you had to vote up or down on S. 615, would you support it or would you support a continuation of the existing law?

9. Do you believe that parties to direct sales contracts, as well as parties for first sale or sale for resale contracts, should be able to take advantage of the Administration's market-out provision?

10. If old gas is not deregulated by the final bill, would you support it?

11. Do you support extension of the Administration's market-out provision to minimum bill contracts between pipelines and/or to contracts between pipelines and local distribution companies?

12. Several panel members advocate repeal of fuel use restrictions in the Powerplant and Industrial Fuel Use Act.

a. What markets or users would you expect to serve if PIFUA is repealed?

b. What price would you expect those users to pay?

c. What volumes would you expect to sell to those new users?

QUESTIONS FOR MR. DAGE

1. Why do you say on page 4 of your statement that, "The Energy Department proposal will result in price controls in perpetuity not just on old, but on both old and new gas." Don't all price controls, and limitations on passthrough, expire by January 1, 1986 under the bill?

2. You say on page 5 of your testimony that the Administration bill would reregulate our prices through a disastrous roll back. I thought Sec. 107 prices were frozen, not rolled back. What do you mean?

3. Yesterday we had extensive testimony from non-industrial consumer witnesses. They all predict significant price increases if the NGPA stays in effect, and even greater ones if S. 615 is passed. But you say that "prices for domestically purchased supplies have passed their peak; they are now falling and will continue to fall under the NGPA."

a. Have you or Mr. Hefner discussed your projections with any of those who appeared yesterday?

b. If not, are you familiar with their testimony?

c. Where do you disagree with their projections?

4. If we do not amend the NGPA, what do you project the reserve additions/production chart on page 9 would look like through the end of the decade? What would it look like if S. 615 were passed?

5. Have you or Mr. Hefner personally met with Secretary Hodel, or any of his aides, to discuss your view of the natural gas markets under continuation of the NGPA? If so, what do they say when you show them your projections?

QUESTIONS FOR MS. WALLACE

1. You say on page two of your statement that "a significant portion of the nation's industrial gas load is leaving the system for alternate fuels priced in a free market setting. In the past twelve months, between 20 to 25 percent of the past natural gas markets have disappeared, the vast majority in the industrial sector."

   a. Are these markets going to #6 oil, #2 oil, or are the businesses using less energy due to the recession and price induced conservation?

   b. If you believe they are going to oil, how do you account for the fact that petroleum consumption declined in this country in 1982, as compared to 1981? Total consumption was down 6.3%, according to the January, 1983, Monthly Energy Review. It also declined each year from 1979. That is true in all sectors of the economy -- residential and commercial, industrial, and transportation.

   c. Further, consumption of residual oil was 1.7 million barrels per day in 1982, compared to 2.1 million barrels per day in 1981. Residual oil consumption has fallen even further recently. How can you conclude that gas load is going to resid?

2. Have you developed specific statutory language for your proposed "Equal Access" concept? Would you please provide it to the Committee?

3. You say that the amount of gas subject to your "Equal Access" proposal would be small at first, but increase over time.

   a. What volumes do you project will be subject to it?

   b. What is the basis for those projections?

4. You advocate on page four of your statement that the Natural Gas Act provisions that discourage transportation of gas owned by others be modified.

   a. Which provisions are those?

   b. What do you mean by allowing a "sufficient but reasonable shipping tariff"?

5. On page 5 of your statement you mentioned minimum purchase obligations by the distribution companies to the pipelines. Would you advocate that these minimum purchase requirements be subject to a market-out provision, such as is provided for other contracts under S. 615?

QUESTION FOR MR. FULLER

You mention the ratable take issue on page six of your statement. How do you believe the affiliate production limitation in the Administratin bill will work in Texas, which has a ratable take statute? Will there be problems?

QUESTIONS FOR MR. McMILLIAN

1. Your statement implies that industrial users are switching from natural gas to oil.

a. If you believe they are going to oil, how do you account for the fact that petroleum consumption declined in this country in 1982, as comared to 1981? Total consumption was down 6.3%, according to the January, 1983, Monthly Energy Review. It also declined each year from 1979. That is true in all sectors of the economy -- residential and commercial, industrial, and transportation.

b. Further, consumption of residual oil was 1.7 million barrels per day in 1982, compared to 2.1 million barrels per day in 1981. Residual oil consumption has fallen even further recently. How can you conclude that gas load is going to resid?

3. An analysis prepared for former FPC Commissioner, Rush Moody, and provided to the Committee by you, contains the following statement:

"Between enactment and 12/31/85, 'area rate' clauses in existing contracts can trigger price increases for the gas sold thereunder up to the level of new contract prices agreed to anywhere in the country."

Could you explain how this would work?

4. Mr. Moody's memorandum discusses (on page 8) why increases in pipeline purchased gas costs are likely to occur. The Administration bill's consumer protection provision imposes a limitation on the rate of increase for such costs. Under FERC regulations if a PGA increase is turned down, can a pipeline include such costs in a general rate filing, and thus escape the limitation?

MINORITY MEMBERS' ADDITIONAL QUESTIONS FOR

NATURAL GAS HEARING RECORD

Witnesses Appearing March 1[illegible]

QUESTIONS FOR PANEL TW

SENATE COMMITTEE ON
ENERGY AND NATURAL RESOURCES
RECEIVED
MAR 23 1983
WASHINGTON, D.C. 20510

1. What is your best estimate of what the new maximum lawful price for natural gas will be if the fuel cap provision in S. 615 is adopted?

2. What would that price be if only new contracts, and not renegotiated contracts, are included?

3. If S. 615 were adopted, what is your best estimate of how it would affect residential prices paid each year for the next five years? How would that compare with prices under the NGPA for the next five years?

4. How soon would you expect the PGA passthrough limitation in S. 615 would begin to be a problem for the pipelines?

5. If the passthrough limitation in S. 615 is adopted, how would you expect to treat payments you are contractually entitled to collect from a purchaser, but which could not be recovered by a pipeline through the PGA mechanism?

6. Do you support any of the bills pending before the Committee on Energy and Natural Resources? If so, please indicate which one(s).

7. Please provide the Committee with specific statutory language for any amendments you would like to see adopted if the Committee were to use S. 615 as a mark-up vehicle for natural gas legislation.

8. If the amendments you support are not adopted, and if you had to vote up or down on S. 615, would you support it or would you support a continuation of the existing law?

9. Do you believe that parties to direct sales contracts, as well as parties for first sale or sale for resale contracts, should be able to take advantage of the Administration's market-out provision?

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12. Several panel members advocate repeal of fuel use restrictions in the Powerplant and Industrial Fuel Use Act.

a. What markets or users would you expect to serve if PIFUA is repealed?

b. What price would you expect those users to pay?

c. What volumes would you expect to sell to those new users?

QUESTIONS FOR MR. DAGE

1. Why do you say on page 4 of your statement that, "The Energy Department proposal will result in price controls in perpetuity not just on old, but on both old and new gas." Don't all price controls, and limitations on passthrough, expire by January 1, 1986 under the bill?

2. You say on page 5 of your testimony that the Administration bill would reregulate our prices through a disastrous roll back. I thought Sec. 107 prices were frozen, not rolled back. What do you mean?

3. Yesterday we had extensive testimony from non-industrial consumer witnesses. They all predict significant price increases if the NGPA stays in effect, and even greater ones if S. 615 is passed. But you say that "prices for domestically purchased supplies have passed their peak; they are now falling and will continue to fall under the NGPA."

a. Have you or Mr. Hefner discussed your projections with any of those who appeared yesterday?

b. If not, are you familiar with their testimony?

c. Where do you disagree with their projections?

4. If we do not amend the NGPA, what do you project the reserve additions/production chart on page 9 would look like through the end of the decade? What would it look like if S. 615 were passed?

5. Have you or Mr. Hefner personally met with Secretary Hodel, or any of his aides, to discuss your view of the natural gas markets under continuation of the NGPA? If so, what do they say when you show them your projections?

QUESTIONS FROM VARIOUS REPUBLICAN MEMBERS OF THE COMMITTEE

1. Please provide the Committee with the specific legislative language necessary to implement those changes to the Administration's bill, S. 615, that you identified in your oral and written testimony as being necessary. Also please provide the Committee a justification for each of your recommended changes.

2. Please provide the Committee with your estimate of the amount by which gas prices would increase or decrease, both over the short-run and over the long-run if S. 615 is enacted.

3. Please provide the Committee with your estimate of the amount by which gas supplies and gas reserves would increase or decrease, both over the short-run and over the long-run, if S. 615 is enacted.

4. Please provide the Committee with your estimate of the level of the gas cap if S. 615 were enacted today and the amount by which the cap would reduce average purchased gas costs.

5. Some witnesses appearing before the Committee have suggested that enactment of S. 615 would bring about chaos in the gas market. Please provide the Committee with your assessment of the prospect of that occurring.

MINORITY MEMBERS' ADDITIONAL QUESTIONS

1. The effect of the fuel cap provision in S. 615 on the maximum lawful price for gas will depend heavily on the speed of the contract renegotiation process. If pipelines and producers make only small initial adjustments in large numbers of old gas contracts, the cap could be as low as $1.50 to $2.00. In view of the moratorium on automatic PGA increases it is difficult to conceive of pipelines agreeing to make more than modest initial increases in prices paid for old gas supplies. Thus, there is a strong probability of a cap that falls far below any realistic appraisal of the market clearing level. Virtually all producer witnesses, the Chairman of the FERC and the Secretary of Energy have acknowledged this flaw in the cap. The fact that DOE's analyses did not take this problem into account should lead this Committee to question the reliability of all the analytic material presented by DOE in support of S. 615.

2. If only new, and not renegotiated contracts are included, the probability is that the cap would be determined by the average pipeline purchase price of domestic gas supplies less whatever additional costs would be associated with rising old gas prices. DOE estimates the national average purchased gas cost at $2.75. We believe the actual figure is closer to $2.50. If pipelines agree to raise the price they pay for old gas supplies by 5¢ per mcf, 25¢ must be deducted from the average purchase gas price to determine the amount pipelines would be permitted to pay for newly acquired supplies. (This is so because the volume of old gas owned by pipelines outweighs the amount of newly discovered supplies which must be purchased between now and 1985 by a ratio of 5:1.) This would mean a 5¢ increase in old gas prices would yield a cap on existing contracts of $2.25 assuming IGPC's pipeline purchased gas cost estimate and of $2.50 assuming the Energy Department's estimate. Such a major rollback of the price of post-NGPA gas covered by existing contracts would, of course, enable pipelines to pay more for either old or newly discovered supplies. This bill clearly seeks to pressure pipelines to favor so called "low cost" gas. It is therefore entirely possible that pipelines would decide to spend the "dividend" from a reduced post-NGPA existing contract price to further increase the old gas price rather than to pay a more reasonable price for newly discovered reserves.

3. Residential prices for natural gas under this bill would soar once so called "consumer protection" features expire after 1985. This is so because the rollback in drilling incentives, coupled with economic recovery will lead to shortages by the mid-to-late 1980's under

the Hodel plan. In contrast, the NGPA will produce no significant increase and possibly some reduction in residential gas prices through the late 1980's. The probability of moderation in natural gas prices to residential users dramatically increases with restoration of a strong national economy and repeal of federal, state and local constraints on industrial use of natural gas. Increased demand lowers per unit costs by allowing the substantial ($100 billion) fixed costs for transportation and distribution to be spread across a much broader base of users.

4. The PGA passthrough limitation in S. 615 will be a problem for pipelines as soon as it takes effect, since the changing mix of supplies alone -- as old gas reserves are depleted -- will tend to press pipelines toward breach of the "inflation only" standard. This problem will intensify as the recontrol provisions of the bill produce a dramatic reduction in exploration. Resulting reductions in new reserves added and supplies available to replace depleting old gas volumes will leave pipelines in a lose, lose position; they will be forced to choose between loss of existing old gas contracts as the major companies are released from deliverability requirements in 1985 and the loss of their ability to purchase badly needed new reserves.

5. Given the severe adverse consequences of S. 615 on the cash flow of independent companies we would be forced by our investors and creditors to seek recovery of whatever payments our contracts entitle us to receive.

6. We do not support any of the bills pending before the Committee.

7. We support repeal of incremental pricing and the Fuel Use Act. We vigorously oppose old gas decontrol and new gas recontrol in any form. S. 615 cannot be salvaged through technical correction.

8. We would, without question, support continuation of existing law over S. 615, whether in its present, or in modified form.

9. If a market out provision were adopted, it should include direct sales, as well as parties for first sale or sale for resale contracts.

10. The recontrol of new gas, as proposed in S. 615, would destroy all of the progress our country has made since supply shortages and curtailments forced plant closings and worker layoffs only six years ago. We would not support a recontrol bill.

11. If such a market out provision were adopted, it should be extended to pipeline and local distribution company contracts.

12. (a) If PIFUA and incremental pricing were repealed we believe the natural gas industry could compete effectively for new electric utility and industrial boiler fuel markets.

    (b) We would expect those users to pay a price occasionally at or, more often, below the cost of residual fuel oil.

    (c) Depending upon the pace of economic growth, the recovery of the now depressed natural gas drilling industry, the stability of the regulatory environment, and the recognition within the industrial sector of the abundance and economic advantages of natural gas, we project natural gas markets in the next decade could expand by as much as 10 trillion cubic feet per year.

QUESTIONS FOR MR. DAGE

1. I do not believe it is realistic to expect the Congress to enact old gas decontrol. Nor do I believe it realistic to expect that the political pressures leading to enactment of new gas recontrol in 1983 would vanish by 1985 or 1986 when controls are scheduled to expire under S. 615. The opposite is likely. Drilling will collapse. Reserve additions will plummet. Shortages will begin to reappear and as a result the Congress will extend controls for the forseeable future. Notably, Energy Secretary Hodel told the House Fossil Fuels Subcommittee on March 16, 1983 that all provisions in the Administration's bill were negotiable, including the proposed decontrol dates.

2. The price for natural gas sold under existing Section 107 contracts is frozen. However, the price for newly found gas would be governed by the moratorium on PGA increases which we calculate would yield a maximum of $2.25 per mcf at the wellhead. In addition, half of the gas sold by GHK, and considerably more than half of supplies sold by all IGPC members is governed by new shallow gas rather than Section 107 contracts. These prices would be subject to the cap and would be rolled back substantially.

3. We have not discussed our projections concerning price trends with other witnesses who appeared at the March 11, 1983 hearing. We are familiar with their testimony and do not agree with their view that NGPA will cause prices to exceed market clearing levels. We note the that the Energy Department projects only a 4% increase in wellhead prices this year.

After adjusting for inflation, this represents no real increase in natural gas priçes. For several reasons, we believe those who predict significant natural gas price increases under NGPA to be wrong:

a. In December 1982 and January 1983, when fuel prices normally peak, the wholesale price of natural gas fell by 0.8 and 2.7 percent, respectively.

b. Prices paid for Section 107 supplies have fallen dramatically in the last year as market out clauses in existing contracts have been exercised by pipelines.

c. Purchases of newly discovered natural gas at all depths are now being made below Section 102 NGPA ceiling levels.

d. Independent producers are having enormous difficulty securing pipeline hook-ups for newly completed wells. Pipelines have the leverage needed to secure renegotiation of contract clauses which might otherwise cause prices to rise above market levels.

e. The recession, and the resulting reduction in takes from all wells, but most especially from Section 104 wells, serves to prolong the life of the "old gas cushion" slowing the rate of upward price pressure which would otherwise occur as a result of the depletion of low cost, old gas supplies.

f. There appears to be the potential, through diplomatic efforts, for price reductions for high cost imported as well as high cost domestic natural gas supplies. Such reductions, once negotiations are concluded, would further reduce natural gas prices.

The testimony of other witnesses before the Committee takes none of these factors into account. Not surprisingly, many of those witnesses have been 100% wrong on other issues. They predicted the NGPA would produce shortages. They also predicted as recently as a year ago that NGPA would result in natural gas being priced
would result in natural gas being priced far too low in relation to oil. (See Hearings before the Senate Committee on Energy and Natural Resources, November 1981, Statements of the Natural Gas Supply Association, Domestic Petroleum Council and Independent Producers Association of America.)

4. As indicated in our written statement, we believe 1982 gross reserve additions will exceed the 1981 level by from 3 to 5 trillion cubic feet. The present reduction in drilling activity, caused by the recession and contraints on natural gas demand, will cause 1983 reserve additions to fall from 1981-82 levels. Assuming a normal economic recovery, and neither recontrol of new gas nor decontrol of old gas, reserve additions should again start to trend upward in 1985 and continue to improve during the remainder of the decade. Provided NGPA new gas decontrol is permitted to occur on schedule and provided natural gas is given full and free access to markets, average reserve additions over the decade of the 80's should be sufficient to sustain production significantly in excess of present levels.

5. Mr. Hefner, together with several IGPC members, met personally with Secretary Hodel and his aides to discuss our view of natural gas markets under continuation of the NGPA. The meeting occurred before Secretary Hodel had reached a decision concerning submission of legislation. The Secretary did not respond at that time to the substance of our analysis: that wellhead prices were falling; that current market problems will ease if the NGPA is permitted to play out; and, that any effort to achieve old gas deregulation is likely to result in the reregulation of new supplies. In fairness to the Secretary, the meeting did not focus on detailed data, current of projected, but rather on broad trends underway in the industry.

QUESTIONS FROM VARIOUS REPUBLICAN MEMBERS OF THE COMMITTEE

1. We support repeal of incremental pricing and the Fuel Use Act. We vigorously oppose old gas decontrol and new gas recontrol in any form. S. 615 cannot be salvaged through technical correction.

2. Between 1983 and 1985, we estimate there would be little difference in prices paid by consumers under S. 615 compared with current law. Unlike DOE, we recognize that wellhead prices are today trending downward and that pipeline companies are also reducing transmission charges to retain industrial load. (See written statement, Appendix B.) After 1985, prices would be dramatically higher under S. 615 than under current law. Doe's own estimates suggest NGPA would result in lower burner tip prices in the period following old gas decontrol. For several reasons, we believe DOE significantly understates the gap. Between now and 1986, incentives to drill for new supplies will plummet under the Administration's bill. New reserve additions will drop. At the same time, S. 615 seeks both to raise the price and to hasten the rate at which old

gas reserves are depleted. The combination of reduced exploration and accelerated depletion provides a certain formula for shortage. Ultimately, shortage will prompt additional drilling, but not without a radical rise in prices. When this occurs (1986 and beyond) no lower-cost, old gas reserves will remain to cushion consumers. Prices paid by residential users under S. 615 will soar, conceivably doubling between January 1, 1986 and January 1, 1987.

3. Gas reserves would decrease over the near, intermediate and long term if S. 615 were enacted. The greatest impact will be in the intermediate 3-7 years following enactment. Supplies (deliverability) would theoretically increase immediately following enactment as incentives are provided to speed depletion of old gas reserves. However, with rising prices for old reserves and with substantial excess deliverability under present law, consumers would not benefit in practice from such supplies. S. 615, by rolling back the price producers can receive for newly discovered supplies to levels beneath those prevailing intrastate markets before NGPA, makes it impossible for producers to explore in those horizons (below 10,000 feet) where the most prolific reserves of natural gas are found. A study prepared by Dr. Edward Erickson, published in January 1981 (Natural Gas and the Natural Gas Policy Act: A Pragmatic Analysis) revealed that deep wells (below 15,000 feet) unlock natural gas reserves averaging 10 times the size of shallow wells. Similarly, a 1982 Energy Department analysis found: "Annual production rates increase dramatically with depth, growing from 53 Mmcf for shallow wells, to 248 Mmcf for near deep wells and to 642 Mmcf for deep wells.". (Letter from Secretary James B. Edwards to Chairman C. Michael Butler, May 6, 1982.) Since drilling costs increase rapidly with depth, and since independent companies, which account for nearly 90% of all new exploration, would be deprived by S. 615 of an estimated $8 billion annually in revenues, and since the debt service obligations of independents would not be reduced, drilling below 15,000 feet would cease and drilling below 10,000 feet would be radically reduced under S. 615. Gross reserve additions averaging 8 to 10 trillion cubic feet over the remainder of the decade, and possibly less, could be expected if S. 615 is passed. Reserve additions in this range would, in turn, drastically reduce deliverabilities from present levels. Let me emphasize that this does not reflect any reduction in the resource base. The gas is there in abundance. Instead, it reflects a reduction in the incentives for producers to develop the supplies that could be made available to consumers.

4. If S. 615 were enacted today, the gas cap could be as low as $2.00, possibly lower if large numbers of relatively small adjustments were made in old gas contracts. However, the cap would not necessarily reduce average purchased gas costs. Instead, the cap could over time lead to a mirror image of current markets, with renegotiated old gas

contracts -- together with a relatively small number of contracts signed following enactment -- commanding a higher price than that paid for supplies discovered between 1978 and the present time. This is true since only existing NGPA -- not newly signed and renegotiated -- contracts would be covered by the cap.

5. There is no question but that S. 615 would bring about chaos in the market. It would all but put an end to independent exploration for new natural gas. It would make it virtually impossible to explore the sediments that contain practically all of the nation's remaining gas supplies -- those below 10,000 feet. It would prompt a dramatic, totally unnecessary and unjustifiable increase in the price of old gas and set the stage for a price explosion when "consumer protection" provisions expire after 1985. It would rapidly produce a dual market, placing intrastate pipelines in a position to dominate future purchases of newly discovered gas supplies. If S. 615 were enacted, there is little doubt that the Congress would be forced to make major changes in national gas policy before 1985. Unlike today, these changes would be made against a backdrop of rapidly dwindling supplies and of a gravely weakened independent producing sector. When independent production companies, and the supply and service companies they support, are put out of business -- as many would be by this bill -- it will be impossible to return to healthy drilling levels overnight. The damage done by S. 615 would take a decade, perhaps longer, to overcome.

TO: Committee on Energy and Natural Resources
U. S. Senate

FROM: Britann E. Wallace, Chairman
Natural Gas Committee
Independent Petroleum Association of Mountain States (IPAMS)
Denver, Colorado

RE: Minority Members' Additional Questions for Natural Gas Hearing Record
Questions for Panel Two - March 11, 1983

1. WHAT IS YOUR BEST ESTIMATE OF WHAT THE NEW MAXIMUM LAWFUL PRICE FOR NATURAL GAS WILL BE IF THE FUEL CAP PROVISIONS IN S.615 IS ADOPTED?

IPAMS estimates that the new price will reflect the current average wellhead price of domestic gas which is estimated at $2.73 MMBtu as of March, 1983. The price under the gas cap will be limited by the PGA passthrough provisions in S.615. These passthrough limitations will control the price a purchaser is able to pay the seller and, in addition, exert a controlling influence on any direct sales made to end users under the contract carrier provisions of Section 403 as any direct sales would have to remain competitive with the end user's alternate energy source.

2. WHAT WOULD THAT PRICE BE IF ONLY NEW CONTRACTS, AND NOT RENEGOTIATED CONTRACTS, ARE INCLUDED?

Again, IPAMS estimates that this gas cap price will be $2.73/MMBtu due to the PGA passthrough limitations in S.615.

3. IF S.615 WERE ADOPTED, WHAT IS YOUR BEST ESTIMATE OF HOW IT WOULD AFFECT RESIDENTIAL PRICES PAID EACH YEAR FOR THE NEXT FIVE YEARS? HOW WOULD THAT COMPARE WITH PRICES UNDER THE NGPA FOR THE NEXT FIVE YEARS?

If S.615 is adopted, IPAMS feels that the average residential price would not increase, and may decline, as use of natural gas would increase in response to market signals and lower prices, or static prices, at the wellhead. As more gas is used, the fixed costs of transportation and distribution would be absorbed by more users thereby lowering that portion of the unit price (currently estimated at 55%) made up of the transportation and distribution costs, resulting in lower prices at the burner tip. This lower residential price would only escalate in response to market conditions over the next five years. The market conditions would be influenced by user confidence. If users believe that adequate, well-priced supplies of natural gas exist, the industry will gradually regain the markets which have switched to alternate fuels over the last two years. As demand slowly increases, producers will respond to the incentive seen in the marketplace and seek to replace reserves. These replacement reserves will have to be well-priced in order to maintain existing and returning markets and encourage new markets.

Question 3 (continued)

If no change is made to NGPA, the price to the consumer of natural gas will continue to escalate over the next five years due to the pricing provisions of NGPA. This is due mainly to the fact that although the deregulation provisions of NGPA on 1/1/85 might allow consumer relief from high prices, the gas market will remain relatively static and consumers will continue to have to bear the fixed costs discussed above. In addition, the supply of gas will be diminishing due to decreased drilling which will work to push the pipeline's acquisition costs upward, and may eventually lead to a price spike if supplies become scarce.

4. HOW SOON WOULD YOU EXPECT THE PGA PASSTHROUGH LIMITATION IN S.615 WOULD BEGIN TO BE A PROBLEM FOR PIPELINES?

The PGA passthrough limitation in S.615 would be a problem for pipelines with high rate filings on the date of enactment in that these pipelines would have difficulty competing for new supplies that would allow them a reasonable rate of return. Pipelines which have been successful in keeping a low-priced mix will have a greater advantage in obtaining new supplies. In IPAMS estimation, an average pipeline rate with a reasonable rate of return should be established nationwide before the passthrough limitation goes into effect in order to encourage an orderly transition, without regional disparities, to a totally deregulated market. Alternatively, phased decontrol of old gas would work to alleviate the burden that the PGA passthrough limitations of S.615 would impose on some pipelines.

5. IF THE PASSTHROUGH LIMITATION IN S.615 IS ADOPTED, HOW WOULD YOU EXPECT TO TREAT PAYMENTS YOU ARE CONTRACTUALLY ENTITLED TO COLLECT FROM A PURCHASER, BUT WHICH COULD NOT BE RECOVERED BY A PIPELINE THROUGH THE PGA MECHANISM?

IPAMS member producers could experience a loss of substantial revenues due to the provisions of S.615. However, our producers have been experiencing reductions in price and takes since the summer of '82. When faced with the choice of losing our markets or revising our contracts, we recognize that there is little choice other than renegotiating our contracts, and accepting a minimum return on equity.

6. DO YOU SUPPORT ANY OF THE BILLS PENDING BEFORE THE COMMITTEE ON ENERGY AND NATURAL RESOURCES? IF SO, PLEASE INDICATE WHICH ONE(S)?

IPAMS supports S.615 with the reservations expressed in the written testimony which has been submitted separately.

7. PLEASE PROVIDE THE COMMITTEE WITH SPECIFIC STATUTORY LANGUAGE FOR ANY AMENDMENTS YOU WOULD LIKE TO SEE ADOPTED IF THE COMMITTEE WERE TO USE S.615 AS A MARK-UP VEHICLE FOR NATURAL GAS LEGISLATION.

IPAMS does not have specific statutory language available at this time. IPAMS respectfully refers the committee to the written and oral comments which have been submitted outlining those changes we would like to see incorporated in S.615.

8. IF THE AMENDMENTS YOU SUPPORT ARE NOT ADOPTED, AND IF YOU HAD TO VOTE UP OR DOWN ON S.615, WOULD YOU SUPPORT IT OR WOULD YOU SUPPORT A CONTINUATION OF THE EXISTING LAW?

On an up or down vote on S.615, IPAMS would support the bill rather than a continuation of existing law for the reasons briefly stated in question 4 above.

9. DO YOU BELIEVE THAT PARTIES TO DIRECT SALES CONTRACTS, AS WELL AS PARTIES FOR FIRST SALE OR SALE FOR RESALE CONTRACTS, SHOULD BE ABLE TO TAKE ADVANTAGE OF THE ADMINISTRATION'S MARKET-OUT PROVISIONS?

IPAMS is not able to make a reasonable assessment of the impact of allowing existing direct sales contracts to market-out as there is little information available in the public domain to assess the effect of market-outs on direct sales contracts.

10. IF OLD GAS IS NOT DEREGULATED BY THE FINAL BILL, WOULD YOU SUPPORT IT?

IPAMS strongly supports total decontrol of all gas. Given the undesirable alternative of non-deregulation of old gas or no deregulation at all, IPAMS would reluctantly accept the former.

11. DO YOU SUPPORT EXTENSION OF THE ADMINISTRATION'S MARKET-OUT PROVISION TO MINIMUM BILL CONTRACTS BETWEEN PIPELINES AND/OR TO CONTRACTS BETWEEN PIPELINES AND LOCAL DISTRIBUTION COMPANIES?

IPAMS supports the Administration's recognition of the re-ordering in the total gas marketplace that is necessary to promote a healthy industry. In that vein, IPAMS supports the extension of market-out provisions to minimum bill and local distribution companies as a necessary part of a comprehensive solution leading to a deregulated marketplace responsive to the basic tenets of the laws of supply and demand.

12. SEVERAL PANEL MEMBERS ADVOCATE REPEAL OF FUEL USE RESTRICTIONS IN THE POWERPLANT AND INDUSTRIAL FUEL USE ACT.

    a. WHAT MARKETS OR USERS WOULD YOU EXPECT TO SERVE IF PIFUA IS REPEALED?

    Large industrial boiler fuel users and electrical generation markets.

    b. WHAT PRICE WOULD YOU EXPECT THOSE USERS TO PAY?

    On an average, these users would pay a price for natural gas that would be competitive to alternate fuels. Our assessment is that this price would be close to the $2.73/MMBtu average wellhead price that is currently being paid nationwide plus transportation costs.

    c. WHAT VOLUMES WOULD YOU EXPECT TO SELL TO THOSE NEW USERS?

    IPAMS feels that the volumes would be minimal at first and gradually increase if these users gained confidence in adequate and well-priced supplies of natural gas being available over the long-term.

QUESTIONS FROM VARIOUS REPUBLICAN MEMBERS OF THE COMMITTEE

1. PLEASE PROVIDE THE COMMITTEE WITH THE SPECIFIC LEGISLATIVE LANGUAGE NECESSARY TO IMPLEMENT THOSE CHANGES TO THE ADMINISTRATION'S BILL, S.615, THAT YOU IDENTIFIED IN YOUR ORAL AND WRITTEN TESTIMONY AS BEING NECESSARY. ALSO PLEASE PROVIDE THE COMMITTEE A JUSTIFICATION FOR EACH OF YOUR RECOMMENDED CHANGES.

   IPAMS does not have specific statutory language available at this time. IPAMS respectfully refers the committee to the written and oral comments which have been submitted outlining those changes and the reasons for those changes which we would like to see incorporated in S.615.

2. PLEASE PROVIDE THE COMMITTEE WITH YOUR ESTIMATE OF THE AMOUNT BY WHICH GAS PRICES WOULD INCREASE OR DECREASE, BOTH OVER THE SHORT-RUN AND OVER THE LONG-RUN IF S.615 IS ENACTED.

   IPAMS estimates that gas prices would stay relatively static for the short-term and gradually increase over the long-term reflecting the inflation rate. At no point will the gas price be able to exceed the equivalent value of oil as can be seen by the events in recent months. As gas prices gradually trend upward, the price will be influenced quickly by market conditions and further conservation practice which is possible but not supported at current price levels.

3. PLEASE PROVIDE THE COMMITTEE WITH YOUR ESTIMATE OF THE AMOUNT BY WHICH GAS SUPPLIES AND GAS RESERVES WOULD INCREASE OR DECREASE, BOTH OVER THE SHORT-RUN AND OVER THE LONG-RUN, IF S.615 IS ENACTED.

IPAMS estimates that if S.615 is enacted gas supplies will be adequate for the nation's needs in the short-run. As the current excess supply is absorbed and reduced drilling lowers national gas reserves, there will be increasing competition for the gas reserves and some increase in price will be seen. IPAMS estimates, however, that the effects of S.615 will be gradual in nature and that with a slow economic recovery and a gradual lowering of reserves, no wide price swings will be apparent but an adequate incentive will develop to permit exploration to insure adequate supplies after 1985.

4. PLEASE PROVIDE THE COMMITTEE WITH YOUR ESTIMATE OF THE LEVEL OF THE GAS CAP IF S.615 WERE ENACTED TODAY AND THE AMOUNT BY WHICH THE CAP WOULD REDUCE AVERAGE PURCHASED GAS COSTS.

IPAMS estimates that the gas cap price today would be equivalent to the average wellhead price which is estimated at $2.73/MMBTU currently. IPAMS estimates that this $2.73 price will not significantly reduce purchased gas costs. The significant savings will result to the consumer from increased volumes subject to the same fixed costs of distribution and transporation. The increased volumes will result renewed confidence in abundant, well-priced supplies of natural gas.

5. SOME WITNESSES APPEARING BEFORE THE COMMITTEE HAVE SUGGESTED THAT ENACTMENT OF S.615 WOULD BRING ABOUT CHAOS IN THE GAS MARKET. PLEASE PROVIDE THE COMMITTEE WITH YOUR ASSESSMENT OF THE PROSPECT OF THAT OCCURRING.

IPAMS recognizes that enactment of S.615 will require some adjustments in the gas markets but these adjustments will work to bring order out of the chaos which currently exists. S.615 points the way to a smooth, orderly transition to a deregulated market. If this comprehensive approach to curing the problems which currently prevail in the gas market is not undertaken, we will soon begin to experience shortages and price spikes as has happened every time in the past that the government has attempted to regulate this industry.

QUESTIONS FOR MS. WALLACE:

1. a. It is our estimate that these markets are going to #6 oil as the maximum price at which natural gas is able to enter the marketplace appears to equal the average price of #6 less transportation charges. In addition to fuel switching, IPAMS recognizes that the recession and price-induced conservation have weakened our markets.

   b. IPAMS believes that both the petroleum and natural gas markets are experiencing declines in consumption due to the recession and price-induced conservation. Our members are experiencing contract price reductions by the purchasers who tell us that their market is switching to #6. In addition, the February, 1983 Monthly Energy Review states that natural gas consumption was 16.8 percent lower in December, 1982 than in December, 1981 and estimated consumption during 1982 declined 8.1 percent from 1981. It is safe to say that, as a nation, we are consuming less energy. However, it is important to note that we are still importing 4.4 million barrels of petroleum a day. IPAMS is concerned that regulated high-cost gas discourages maximum development of the gas market potential. Similarily, expensive, imported LNG discourages maximum development of gas market potential. Yet, the remaining gas market must support the fixed costs of transportation and distribution which are passed through to the consumer creating an unfair and unsupportable burden. Thus, in the case of natural gas, under the current regulatory structure, gas has to compete on a Btu basis with alternate fuels and have add-ons in the form of fixed transportation and distribution costs which work to further erode the position of natural gas in the energy marketplace.

   c. According to the purchasers in the eleven IPAMS states, fuel switching increased in late 1982. It was at this time that purchasers began to invoke the market out provisions of their gas contracts as gas price under the incentive categories of NGPA began to exceed the alternate fuel cost.

2. IPAMS respectfully refers the Committee to the specific statuatory language included in HR 2182 which will be submitted to the U. S. House of Representatives by March 25, 1983 by Representative Pat Schroeder of Colorado.

3. a. Fifteen to twenty percent in the first year increasing to 80-90 percent after five (5) years.

   b. These projections are based on background knowledge of gas contracts and evaluations of end markets.

4. a. The provisions of the Natural Gas Act that discourage transportation of gas owned by others which require modification are those provisions that allow automatic passthrough of transportation charges but do not require pipelines to transport for all sources of gas. Essentially, this gives the pipelines complete control over the gas market by dictating who will sell how much gas and where it will be sold.

   b. By a "sufficient but reasonable shipping tariff" IPAMS means a just, cost-based tariff including a reasonable earnings component with consideration given to transportation and storage costs for natural gas.

5. IPAMS would like to reiterate that IPAMS supports the Administration's recognition of the re-ordering in all phases of the natural gas marketplace that is necessary to promote a healthy industry. IPAMS supports extension of the market-out provision of the minimum purchase obligations by the distribution companies to the pipelines. Any minimum service requirements of the distribution companies will be able to be filled by supplies that are renegotiated with the pipelines or from direct sales with the producer.

Texas Independent Producers & Royalty Owners Association

TIPRO

March 25, 1983

Mr. Howard Useem
Committee Staff
U.S. Senate Committee on Energy and
Natural Resources
Subcommittee on Energy Regulation
Room 3202 Dirksen Senate Office Building
Washington, D.C. 20510

Dear Mr. Useem,

Attached is the response to the questions arising from the Senate Committee Hearing on March 11, 1983, concerning natural gas legislation. We appreciate the opportunity to clarify Mr. Fuller's statement.

Thank you for your consideration of the matters discussed herein.

Sincerely Yours,

Julian G. Martin
Executive Vice President

JGM:bb

enclosures

cc: Harrold E. Wright
Rex Fuller

QUESTION FOR MR. FULLER

You mention the ratable take issue on page six of your statement. How do you believe the affiliate production limitation in the Administration bill will work in Texas, which has a ratable take statute? Will there be any problems?

The Texas Railroad Commission is in the process of appointing an advisory committee to analyze the State's gas proration system and recommend improvements. In preparing for its assignment, committee members are reviewing the take or pay issue and the legal authority for a state to set market demand for its total gas production, including that production sold interstate.

Many participants believe the State has the authority to establish demand and to limit production to meet it. This would require pipelines to (1) take ratably throughout their systems to provide their share of supply for the demand so determined and (2) to transfer supply among themselves to serve the demand where it exists.

Should this eventually be the case, in all probability take or pay requirements exceeding production demand factors would be overridden (force majuere) by the commission's market demand determinations. Consequently, the provisions of the Administration bill referred to in this question would pose no problem.

Howard

NORTHWEST ENERGY COMPANY

JOHN G. McMILLIAN
CHAIRMAN
AND
CHIEF EXECUTIVE OFFICER

1120 - 20TH STREET, N. W.
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WASHINGTON, D. C. 20036
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Official Committee File

March 23, 1983

SENATE COMMITTEE ON
ENERGY AND NATURAL RESOURCES
RECEIVED
MAR 23 1983
WASHINGTON, D.C. 20510

Mr. Howard Useem
Committee Staff
Committee on Energy and Natural
Resources
United States Senate
Washington, D C

Dear Mr. Useem:

Please find attached answers to the questions addressed to me by your letter of March 14, 1983 regarding my appearance before the Committee on March 11, 1983.

If you have any further questions, please do not hesitate to contact me.

Very truly yours,

John G. McMillian

John G. McMillian

RESPONSES TO QUESTIONS FROM VARIOUS REPUBLICAN MEMBERS

1. For the reasons set forth in my testimony of March 11, 1982 the problems associated with S. 615 are conceptual in nature and cannot be resolved by mere language revisions. See also the response to Question No. 8 addressed to Panel Two.

2. As indicated in my testimony of March 11, 1982, gas prices will increase in both the short-run and over the long-run if S. 615 is enacted. Northwest Energy Company has two wholly-owned subsidiaries, Northwest Pipeline Corporation and Northwest Central Pipeline Corporation, which are interstate natural gas transportation companies. On the Northwest Pipeline system, enactment of S. 615 is expected to increase Northwest Pipeline's cost $177 million in 1983 and $5 billion over the productive life of the old gas. On the Northwest Central Pipeline system, enactment of S. 615 is expected to increase Northwest Central's cost $204 million in 1983 and $8.5 billion over the productive life of the old gas reserves.

3. When S. 615 is enacted, the new gas price can be expected to decrease and the old gas price can be expected to increase. Since the old gas is already discovered and developed, reserves will not be expected to change. However, the decrease in price on the new gas will curtail drilling for new gas until such time as the pool of old gas has been depleted and/or until a maximum price can be exhausted from the gas buyers. Therefore,

overall natural gas reserves can be expected to decrease in the short-run and the long-run.

4. The "gas cap" proposal will not lead to price reductions in purchased gas costs below the existing average price, which is currently too high. The fundamental premise underlying the belief that a "gas cap" will lower prices is that all new and renegotiated contracts will reflect lower prices. This is wrong. First, it erroneously assumes that industrial users will contract directly for purchases with negotiated prices reflecting the approximate price of alternate fuels, even where no alternate fuel capability exists. Second, it erroneously assumes that OPEC will not exert any influence on the prices of alternate fuels. Third, it erroneously assumes that all existing pipelines' gas acquisition costs are currently similar, and that all transmission and distribution costs are identical, regardless of market location.

5. Chaos will occur because once all contracts are abrogated, a pipeline's ability to serve the collective requirements of its customers is jeopardized. And, the long-haul carriers will have no bargaining leverage in acquiring new supplies, since the "net-back" to producers will be higher the closer the ultimate market is to the producing field. Additionally, there are no incentives provided to encourage new drilling and discoveries. Thus, S. 615 will lead to a reduction in available supplies and a repeat of the gas curtailments of the 1970's.

RESPONSES TO QUESTIONS FOR MR. McMILLIAN

1 (a) & (b). Monthly and annual petroleum and residual fuel oil consumption has declined due to the state of the economy, increased conservation efforts, milder than normal weather, etc. Nonetheless, industrial gas users are switching to No. 2 and No. 6 because of increasing gas prices under NGPA contracts that are not responsive to the marketplace. On the Northwest Central Pipeline Corporation system beginning in December 1982, customers ranging from industrial plants to state universities and hospitals have switched to oil, amounting to an annualized volume of 12 Bcf. At present rate levels, additional switching can be expected to occur. Additionally, attached hereto is an American Gas Association "Survey of Industrial Fuel Switching and Alternative Fuel Capability, 1981-82 (Update)", dated September 3, 1982, which shows that as much as 659 Bcf could be lost to oil nationally by the end of 1982.

3. The "gas cap" is a legislatively established national ceiling price. Numerous gas purchase contracts contain provisions allowing prices to increase to such a ceiling price.

4. Both a PGA and general rate increase are governed by the standards of Section 4 of the Natural Gas Act. However, S. 615 does not address the problem, which is that Section 4 of the Act generally permits recovery of prudently incurred costs. Thus, to the extent that a pipeline's costs are prudent under Section 4 of the Act, such costs ultimately will be recoverable, S. 615 notwithstanding.

RESPONSES TO QUESTIONS FOR PANEL TWO

1. A "new maximum lawful price" cannot be predicted. *See also* response to Question No. 3 addressed to Mr. McMillian.

2. See above.

3. It would drive residential prices upward, at a rate faster than under the NGPA, since "old" gas would be deregulated, industrial usage would continue to decline, and the inelastic residential users would bear the increased purchased gas costs and a greater proportion of fixed costs.

4. Immediately.

5. This question appears to be directed to natural gas producers.

6. We are carefully studying other legislative initiatives but have not reached any decisions on the matter.

7. See response to Question No. 1 from various Republican members of the Committee.

8. For the reasons set forth above, we believe that S. 615 cannot be satisfactorily amended, and, therefore, we could not support it in any fashion. However, it is imperative that legislation be enacted this year to deal with the problems being encountered with the take-or-pay and price escalation provisions in gas purchase contracts.

9. The market-out provisions of S. 615 are inequitable. The transportation requirement is only on a "best efforts", capacity available basis, and only applies to the prior purchasing pipeline. As such, it will be an administrative nightmare for the FERC.

10. No, this is only a portion of the problem with S. 615.

11. No.

12. While PIFUA should be repealed, we cannot assess the new markets, volumes or price that may result from its repeal.

Howard

NGEA NATURAL GAS EQUAL ACCESS
1860 Lincoln Street, Suite 1300 ■ Denver, Colorado 80295 ■ (303) 861-5252

Official Committee File

SENATE COMMITTEE ON
ENERGY AND NATURAL RESOURCES
RECEIVED
MAR 23 1983
WASHINGTON, D.C. 20510

March 22, 1983

Howard Useem
United States Senate
Room S.D. 306
Washington, D.C. 20510

Dear Howard:

Enclosed please find our answers for questions submitted by majority and minority members of the Committee to members of panel 2 on March 11. I obtained these questions from IPAMS, who was on the same panel. I have not received any questions or correspondence from the Committee, so I don't know if there were any specific questions on our access comments. If there were any, I will answer them as soon as I get them.

Good luck in the process.

Yours very truly,

NGEA

D. W. Wilson

D. W. Wilson
President

DWW:pb

Enclosure

Association for Equal Access to Natural Gas Markets and Supplies

MINORITY MEMBERS' ADDITIONAL QUESTIONS FOR

NATURAL GAS HEARING RECORD

WITNESSES APPEARING MARCH 11, 1983

QUESTIONS FOR PANEL TWO

1. What is your best estimate of what the new maximum lawful price for natural gas will be if the fuel cap provision in S. 615 is adopted?

Answer:

Our estimate of the gas cap if S 615 is adopted unchanged is originally around $2.75 per mcf. We do not anticipate that any old contracts will be renegotiated until there is room within the PGA limitation. Initially, the gas cap price will be based mostly on a few new contracts which will be within the range of current PGA's, or around $2.75. This also fits with our discussions with industrial users as to the necessary level for field prices before transportation in order to be competitive with #6 oil.

As the gas cap price is established around $2.75 initially, room within the PGA limitation will be created since Sections 102, 103 and 108 will be rolled back to $2.75. On a system with an average mix, this will allow Section 104 to be renegotiated upward, very dramatically in some cases. As these renegotiated contracts become a larger part of the gas cap, the gap cap price will drop further causing more reductions in 102, 103 and 108 gas prices and thus allowing more room to renegotiate old contracts. Our estimate is that by the end of the period the gas cap price will be in the range of $2.25 to $2.50. It is ironic that the entire gas debate has centered on deep high cost gas, which is essentially frozen in price during the interim period, and Section 104, old gas, which can go up in price very dramatically during the interim period, while conventional 102 and 103 gas, which are not the problems in today's markets, absorb the reductions. To solve this inequity, the PGA limitation could be softened and the gas cap should include only new contracts.

Also, a potential inequity exists in that there is no requirement for equitable renegotiations during the interim period. Old, low-priced gas owned by production affiliates of pipelines could be renegotiated prior to unaffiliated producers' contracts being renegotiated. Since a significant portion of pipeline affiliates' old gas had been previously classified as cost of service gas and its investment was guaranteed by consumers, it is extremely unfair to both consumers and unaffiliated producers for it to be renegotiated before all other 104 gas is renegotiated.

2. What would that price be if only new contracts, and not renegotiated contracts are included?

Answer:

If only new contracts were included in the gas cap, it would be around $2.75.

3. If S. 615 were adopted, what is your best estimate of how it would affect residential prices paid each year for the next five years? How would that compare with prices under the NGPA for the next five years?

Answer:

It is impossible to predict residential prices with any accuracy since domestic field level prices, which are all that are affected by S. 615, represent only 45% of residential prices in September, 1982 -- $2.53 out of $5.68 according to DOE/EIA-0130 (83/01). If charges for transportation and distribution are left to the current system, residential gas costs will continue to escalate, even if field level prices are frozen. Many politicians have focused on producer prices and seem to have no interest in other costs comprising 55% of residential consumers' bills. Although difficult to quantify the best hope for reducing gas costs below what they would be under the "status quo" is to adopt some form of decontrol with very strong equal access proposals so that captive buyers of high cost gas can shop for lower priced supplies.

4. How soon would you expect the PGA passthrough limitation in S. 615 would begin to be a problem for the pipelines?

Answer:

The effect of the PGA limitation would vary from pipeline to pipeline. For pipelines with average or above average PGA's, the falling price of Sections 102, 103 and 108 gas would provide a cushion to renegotiate old gas prices without the PGA limitation being a problem. However, pipelines with below average PGA's due to higher than average amounts of old gas in their mix may not have enough of a roll-back in 102, 103 and 108 gas prices to be able to renegotiate the old gas on its system to levels to keep that supply when 104 producers can market out. The real pressure on these systems' PGA limitations will be between January 1, 1985 and January 1, 1986 when producers of 104 gas begin to market out.

5. If the passthrough limitation in S 615 is adopted, how would you expect to treat payments you are contractually entitled to collect from a purchaser, but which could not be recovered by a pipeline through the PGA mechanism?

Answer:

Obviously, something would have to give, but not all of the give should be from producers. Gas pipelines, according to Forbes annual review of industry, earned 19.7% after tax return on equity in 1982 while producers earned considerably less. It would not be inequitable for pipelines to absorb some of the costs of contracts they freely entered into.

6. Do you support any of the bills pending before the Committee on Energy and Natural Resources? If so, please indicate which one(s).

Answer:

With the modifications proposed in our written testimony and some modification in the gas cap, we support S. 615. We also helped write and fully support H.R. 2182.

7. Please provide the Committee with specific statutory language for any amendments you would like to see adopted if the Committee were to use S. 615 as a mark-up vehicle for natural gas legislation.

Answer:

We will submit to the Committee H.R. 2182 which contains statutory language to move toward a truly national market through equal access. The access to transportation sections of the bill, H.R. 2182, represents the minimum requirements to move to a truly national market. Moving gas from a producer to a user is not unlike driving a 100-mile road with numerous bridges. If pipelines, interstate or intrastate, are allowed to deny crossing of any one bridge, the trip can't be made.

8. If the amendments you support are not adopted, and if you had to vote up or down on S. 615, would you support it or would you support a continuation of the existing law?

Answer:

Although we doubt that choice will be offered, we would support S. 615 reluctantly on a straight up or down vote. Many of our members would vote no because the access provisions are entirely too weak.

9. Do you believe that parties to direct sales contracts, as well as parties for first sale or sale for resale contracts, should be able to take advantage of the Administration's market-out provision?

Answer:

There is very little data available on this question that we have analyzed, so our answer is not well developed. Our initial reaction is yes since all prior contracts were entered into under the hammer of federal price controls or contract requirements. An exception to this would be pre-NGPA direct sale on contracts in the intrastate markets.

10. If old gas is not deregulated by the final bill, would you support it?

Answer:

This is difficult to say since if the final bill did not ever decontrol old gas, then other major provisions would have to be altered. Thosealterations and the final access to transportation language would guide our decision.

11. Do you support extension of the Administration's market-out provision to minimum bill contracts between pipelines and/or to contracts between pipelines and local distribution companies?

Answer:

Absolutely, in some form. Without relief from these obligations local distribution companies are not free to at least have the option to go seek lower cost supplies. Our proposal in H.R. 2182 is that minimum bill obligations should be reduced by volumes of gas acquired by direct purchase by local distribution companies or their customers. Alternatively, as local distribution companies buy their own gas and have their minimum bill obligations reduced, the pipelines should have their service obligations reduced by a like amount.

12. Several panel members advocate repeal of fuel use restrictions in the Powerplant and Industrial Fuel Use Act.

    a. What markets or users would you expect to serve if PIFUA is repealed?

    b. What price would you expect those users to pay?

    c. What volumes would you expect to sell to those new users?

    Answer:

    a. Boiler fuel users of all types, whether industrial or for electrical generations.

    b. Currently about $2.75 in order to retain and possibly add markets.

    c. It is difficult to say, although not much initially. By the mid-1990's, new gas use in these markets could approach 2.5 to 3.0 tcf per year, or slightly less than double current gas usage for this use.

QUESTIONS FROM VARIOUS REPUBLICAN MEMBERS OF THE COMMITTEE

1. Please provide the Committee with the specific legislative language necessary to implement those changes to the Administration's bill, S. 615, that you identified in your oral and written testimony as being necessary. Also please provide the Committee a justification for each of your recommended changes.

Answer:

The specific language to overcome the deficiencies in S. 615 in regard to the transportation issues are outlined in our previously submitted written statement. H.R. 2182, which incorporates the minimum requirements necessary to achieve a national market but does not touch on the pricing issue, has legislative language for transportation, tariffs, minimum bill and service obligations and restrictions on dealings between pipelines and production affiliates that would strengthen S. 615 and allow its stated objective of a national market to be accomplished.

2. Please provide the Committee with your estimate of the amount by which gas prices would increase or decrease, both over the short-run and over the long-run, if S. 615 is enacted.

Answer:

For the short term, due to the scenario described below in question 4, we think field level prices would fall. However, since domestic field level prices represent only 45% of delivered residential gas prices ($2.53 vs. $5.68 for Sept. '82, according to DOE/EIA-0130(83/01), the reduced field level prices may not be passed fully along to users since rapidly increasing unit costs for transportation and distribution may offset reduced field level prices. Long-term, S. 615 should result in lower prices due to increased drilling and supplies being available.

3. Please provide the Committee with your estimate of the amount by which gas supplies and gas reserves would increase or decrease, both over the short-run and over the long-run, if S. 615 is enacted.

Answer:

If the access provisions are strengthened and the transition period is smoothed out by solving some of the problems outlined in our answer to 2, the supply of gas will be greatly enhanced by S. 615 compared to the current system. Our estimate is that drilling will be 20 to 30% higher than if we stay with the current system.

4. Please provide the Committee with your estimate of the level of the gas cap if S. 615 were enacted today and the amount by which the cap would reduce average purchased gas costs.

Answer:

Our estimate of the gas cap if S. 615 is adopted unchanged is originally around $2.75 per mcf. We do not anticipate that any old contracts will be renegotiated until there is room within the PGA limitation. Initially, the gas cap price will be based mostly on a few new contracts which will be within the range of current PGA's, or around $2.75. This also fits with our discussions with industrial users as to the necessary level for field prices before transportation in order to be competitive with #6 oil.

As the gas cap price is established around $2.75 initially, room within the PGA limitation will be created since Sections 102, 103 and 108 will be rolled back to $2.75. On a system with an average mix, this will allow Section 104 to be renegotiated upward, very dramatically in some cases. As these renegotiated contracts become a larger part of the gas cap, the gas cap price will drop further causing more reductions in 102, 103 and 108 gas prices and thus allowing more room to renegotiate old contracts. Our estimate is that by the end of the period the gas cap price will be in the range of $2.25 to $2.50. It is ironic that the entire gas debate has centered on deep high cost gas, which is essentially frozen in price during the interim period, and Section 104, old gas, which can go up in price very dramatically during the interim period, while conventional 102 and 103 gas, which are not the problems in today's markets, absorb the reductions. To solve this inequity, the PGA limitation could be softened and the gas cap should include only new contracts.

Also, a potential inequity exists in that there is no requirement for equitable renegotiations during the interim period. Old, low-priced gas owned by production affiliates of pipelines could be renegotiated prior to unaffiliated producers' contracts being renegotiated. Since a significant portion of pipeline affiliates' old gas had been previously classified as cost of service gas and its investment was guaranteed by consumers, it is extremely unfair to both consumers and unaffiliated producers for it to be renegotiated before all other 104 gas is renegotiated.

Longer term, every reliable economist now recognizes that total decontrol will result in lower costs than under the current system.

5. Some witnesses appearing before the Committee have suggested that enactment of S. 615 would bring about chaos in the gas market. Please provide the Committee with your assessment of the prospect of that occurring.

Answer:

Regulations, an inefficient and unfair system developed mainly to guarantee returns for the pipelines and 29 years of price controls, have created a situation that is now chaotic. We would prefer chaos working toward decontrol and a national market to the chaos we now have, which has no purpose and is benefiting only the transporters of gas, certainly not consumers or producers.

QUESTIONS FROM VARIOUS REPUBLICAN MEMBERS OF THE COMMITTEE

1. Please provide the Committee with the specific legislative language necessary to implement those changes to the Administration's bill, S. 615, that you identified in your oral and written testimony as being necessary. Also please provide the Committee a justification for each of your recommended changes.

2. Please provide the Committee with your estimate of the amount by which gas prices would increase or decrease, both over the short-run and over the long-run if S. 615 is enacted.

3. Please provide the Committee with your estimate of the amount by which gas supplies and gas reserves would increase or decrease, both over the short-run and over the long-run, if S. 615 is enacted.

4. Please provide the Committee with your estimate of the level of the gas cap if S. 615 were enacted today and the amount by which the cap would reduce average purchased gas costs.

5. Some witnesses appearing before the Committee have suggested that enactment of S. 615 would bring about chaos in the gas market. Please provide the Committee with your assessment of the prospect of that occurring.

QUESTIONS FROM REPUBLICAN MEMBERS OF THE COMMITTEE

1. United Distribution Companies' testimony (p. 1) states that studies that the UDC have commissioned indicate that pipeline gas purchase costs have reached and are being projected above market clearing levels.

   Q. In UDC's opinion, would any of the bills currently pending before the Committee */ fully address the problems in the natural gas market, or should Congress instead seek to be more comprehensive in its approach to the issue of natural gas?

2. In UDC's opinion, what impact would the various proposals currently pending before the Committee */ have on:

   --residential, commercial and industrial gas prices?
   --short-term and long-term gas supplies?
   --the financial situation of producers, pipelines and gas distribution companies?

3. In UDC's opinion, to what extent and on what matters does the Federal Energy Regulatory Commission have the statutory authority to take action to address current and potential future problems in the gas market? Please provide the Committee with a detailed legal analysis of the FERC's authority. What actions would you recommend that the FERC take?

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*/ S. 2074; S. 2892; S. 3028; S. 3054; S. 3069; S. 3070; S. 3076; S. 3088.

QUESTIONS FROM REPUBLICAN MEMBERS OF THE COMMITTEE

1. The Associated Gas Distributors note in their written testimony (p.2) that they have four areas of concern with respect to natural gas policy:

   1. the need to bring retail gas market signals more quickly and accurately to the wellhead market;
   2. the need to assure that gas distributors can be informed as to the supply acquisition prices and practices of their suppliers and that they can act to protect their interests;
   3. the need to remove the economic windfalls to natural gas producers under the NGPA; and
   4. the need to enhance interstate gas supply security though regulation of pipeline transportation service.

   Q. In AGD's opinion, do any of the proposals currently pending before the Committee*/ address satisfactorily all of these concerns?

2. On p. 6 of AGD's testimony it urges Congress to amend NGPA Sec. 601 (c)(2) to include a "prudence" standard for pipeline purchases of natural gas.

   Q. In AGD's opinion, why can't the FERC achieve this objective using their authority under Sec. 5 of the Natural Gas Act?

   Q. Isn't the FERC looking at this matter right now in their Tennessee Gas Pipeline proceedings?

3. AGD's testimony outlines various problems that distributors are currently encountering and believe that will occur in the near future as the NGPA plays out.

   Q. In AGD's opinion, do any of the proposals currently pending before the Committee */address all of the various aspects of the "natural gas problem"?

   Q. In AGD's opinion, what impact would the various proposals currently pending before the Committee */ have on:

   --residential, commercial and industrial gas prices?
   --short-term and long-term gas supplies?
   --the financial situation of gas distributors?

4. In AGD's opinion, to what extent and on what matters does the Federal Energy Regulatory Commission have the statutory authority to take action to address current and potential future problems in the gas market? Please provide the Committee with a detailed legal analysis of the FERC's authority. What actions would you recommend that the FERC take?

*/ S. 2074; S. 2302; S. 3028; S. 3054; S. 3069; S. 3070; S. 3076; S. 3088.

5. Under existing law, does the FERC have the authority to deny outright the pass-through of purchased gas costs attributable to wellhead purchases that exceed an arbitrary take-or-pay limit, such as 75 percent?

6. On page 12, the NGSA states that the solution to the problem is "to abolish the artifical and meaningless price differentials for a fungible and homogeneous commodity."

   Q. If you are advocating decontrol of gas prices and no modifications in the provisions of existing gas purchase contracts, would not the inevitable result be a substantial short-term increase in wellhead prices, pipeline purchased gas costs, and retail gas prices?

   Q. After that increase occurs, would it not take many months, if not years, before a long-term decline in gas prices would commence, because considerable time would elapse before there would be a significant price effect resulting from the renegotiation of existing contracts and the signing of new contracts, with much reduced gas price provisions. If you disagree please explain.

   Q. If you contend that immediate decontrol would result in an immediate reduction in retail gas prices, please provide a detailed explanation.

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*/ S. 2074; S. 2892; S. 3028; S. 3054; S. 3069; S. 3070; S. 3076; S. 3088.

1. The American Gas Association's testimony refers to "unreasonable" take-or-pay provisions in producer/pipeline contracts.

   Q. Please explain why AGA considers some, presumably high percentage, take-or-pays as "unreasonable"? Isn't it true that contracts with provisions such as these were entered into openly and freely by both the pipeline and the producer?

   Q. In AGA's opinion, if the use of take-or-pays were limited or eliminated altogether, wouldn't producers just demand a higher price for their gas at the wellhead? If this were to occur, wouldn't the savings from limiting the use of take-or-pays just be offset by higher wellhead prices?

2. The AGA's testimony indicates that pipelines have begun to exercise their market out clauses in existing contracts, and are now signing contracts which have much less severe take-or-pay levels, and perhaps more importantly are also signing contracts which set the price of gas below the legal maximum.

   Q. Wouldn't this suggest that Congress closely examine what is going on in the gas market to ascertain the extent of any problems that are occuring and the degree to which normal market forces and industry actions will ameleorate these problems before we attempt to legislate a "fix"?

3. The AGA states on p. 3 of its testimony, that it does not believe that proposals to freeze wellhead prices would help consumers this heating season.

   Q. Please explain the basis for that conclusion.

4. In AGA's opinion, to what extent and on what matters does the Federal Energy Regulatory Commission have the statutory authority to take action to address current and potential future problems in the gas market? Please provide the Committee with a detailed legal analysis of the FERC's authority. What actions would you recommend that the FERC take?

5. In AGA's opinion what impact would the various proposals currently pending before the Committee[*] have on:

   --residential, commercial and industrial gas prices?
   --short-term and long-term gas supplies?
   --the financial situation of producers, pipelines and gas distribution companies?

[*] S.2074; S. 2892; S. 3028; S. 3054; S. 3069; S. 3070; S. 3076; S. 3088.

QUESTIONS FROM REPUBLICAN MEMBERS OF THE COMMITTEE

1. In INGAA's opinion, to what extent and on what matters does the Federal Energy Regulatory Commission have the statutory authority to take action to address current and potential future problems in the gas market? Please provide the Committee with a detailed legal analysis of the FERC's authority. What actions would you recommend that the FERC take?

2. There have been numerous charges that the laws of supply and demand do not operate in the gas market; cited as evidence for this are the continuous increases in gas prices in the face of an apparent surplus of gas.

   Q. How do you explain this apparent failure of the laws of supply and demand?

   Q. To what extent is the regulatory structure responsible for these results?

3. It is noted on page 10 of INGAA's testimony that the "basic cause of gas price increases is the change in mix of gas supplies under the NGPA."

   Q. To what extent then, would the various proposals currently pending before the Committee*/ reduce or moderate the increase in residential gas prices if any or all were adopted?

4. What impact would the various proposals currently pending before the Committee */ have on:

   --residential, commercial and industrial gas prices?
   --short-term and long-term gas supplies?
   --the financial situation of interstate gas pipelines?

5. What impact would enactment of the proposals currently pending before the Committee*/ have on the producer/pipeline renegotiations which are currently underway?

*/ S. 2074; S. 2892; S. 3028; S. 3054; S. 3069; S. 3070; S. 3076; S. 3088.

5. Under existing law, does the FERC have the authority to deny outright the pass-through of purchased gas costs attributable to wellhead purchases that exceed an arbitrary take-or-pay limit, such as 75 percent?

6. On page 12, the NGSA states that the solution to the problem is "to abolish the artifical and meaningless price differentials for a fungible and homogeneous commodity."

   Q. If you are advocating decontrol of gas prices and no modifications in the provisions of existing gas purchase contracts, would not the inevitable result be a substantial short-term increase in wellhead prices, pipeline purchased gas costs, and retail gas prices?

   Q. After that increase occurs, would it not take many months, if not years, before a long-term decline in gas prices would commence, because considerable time would elapse before there would be a significant price effect resulting from the renegotiation of existing contracts and the signing of new contracts, with much reduced gas price provisions. If you disagree please explain.

   Q. If you contend that immediate decontrol would result in an immediate reduction in retail gas prices, please provide a detailed explanation.

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*/ S. 2074; S. 2892; S. 3028; S. 3054; S. 3069; S. 3070; S. 3076; S. 3088.

MINORITY MEMBERS' ADDITIONAL QUESTIONS FOR NATURAL GAS HEARING RECORD

Witnesses Appearing March 11, 1983

QUESTIONS FOR PANEL THREE

1. What is your best estimate of what the new maximum lawful price for natural gas will be if the fuel cap provision in S. 615 is adopted?

2. What would that price be if only new contracts, and not renegotiated contracts, are included?

3. If S. 615 were adopted, what is your best estimate of how it would affect residential prices paid each year for the next five years? How would that compare with prices under the NGPA for the next five years?

4. Have you, or any of the consultants you work with, done any analysis of the supply response to the Administration's bill.

    a. Specifically, what would reserve additions look like for the next five years?

    b. What would the price for new supplies be, if old gas is deregulated, as compared to what the price would be if it remains regulated?

5. How soon would you expect the PGA passthrough limitation in S. 615 would begin to be a problem for the pipelines?

6. If the passthrough limitation in S. 615 were adopted, how would your members treat payments they are contractually obligated to pay, but which they could not recover?

7. If old gas deregulation stays in the final bill, would you support it?

8. Please provide the Committee with specific statutory language for any amendments you would like to see adopted if the Committee were to use S. 615 as a mark-up vehicle for natural gas legislation.

9. If the amendments you support are not adopted, and if you had to vote up or down on S. 615, would you support it or would you support a continuation of the existing law?

10. Do you feel the authority to exercise a market-out should be extended to contracts between pipelines?

12. One of the basic objectives of the Administration bill is to create a "free market" for natural gas.

   a. How would you feel about creating a free market for pipelines and local distribution companies by deregulating them completely?

   b. What if that deregulation were to occur as of January 1, 1986, so there would be a transition period, coupled with the option to abrogate your contracts, and then deregulation?

13. Do you support the equal access provisions advocated by the witness from the Independent Petroleum Association of Mountain States, or by the witness from the Coalition for Equal Access?

14. Do you all agree that, from your vantage point, decontrol of old gas is the chief issue before us in S. 615?

15. On page 17 of his prepared statement, Mr. McGrath foresees the Administration bill as leading to a dual market, the intrastate and the interstate market. Do all panelists agree? How, and how soon, would this happen?

16. Do you believe that parties to direct sales contracts, as well as parties for first sale or sale for resale contracts, should be able to take advantage of the Administration's market-out provision? What about minimum bill contracts between pipelines, and contracts between pipelines and local distribution companies?

17. Several panel members advocate repeal of fuel use restrictions in the Powerplant Industrial Fuel Use Act.

   a. What markets or users would you expect to serve if PIFUA is repealed?

   b. What price would you expect those users to pay?

   c. What volumes would you expect to sell to those new users?

18. Section 405 of S. 615 makes the contract carrier authorization applicable only in a limited set of circumstances. In short, the pipeline previously carrying the gas would have to carry it for a new purchaser. Would you support expanding this requirement so that any pipeline, interstate or intrastate, could be required to carry gas for any other purchaser?

19. In simplest terms, the Administration's proposal attempts to keep gas prices flat between now and 1986 while old gas contracts are renegotiated. This will be accomplished by reducing new gas prices. How can anyone explain to the public that this is a good idea when they know that the new gas sources are where we get our new production?

20. What assurances are there that after 1/1/85 gas producers won't just unilaterally abandon old gas contracts and withhold supplies from the market until their price demands are met?

a. Given the passthrough limitation, how could pipelines agree to these demands?

b. How do you see this confrontation being resolved so as to keep needed supplies flowing?

21. Could you discuss the gamesmanship or the psychology that would likely occur under S. 615 if a producer comes to the pipeline with which he has a contract on the day after enactment of S. 615 and says, "Let's agree to an insignificant amendment to our contract as that will constitute a renegotiation and deregulate us from price controls and non-price regulation, although the significant aspects of our contract will remain in effect." How is a pipeline likely to react to that offer?

22. Several panel members discussed the fact that gas prices are nearing and in some cases exceeding #6 oil prices in several markets. What is the best, most reliable, up to date source of data to turn to for prices paid for both gas and #6 and #2 oil in various cities or regions for the industrial market? Please summarize this data for the Committee.

23. Testimony before the Committee has suggested that enactment of the Administration proposal would lead to a dual market for natural gas, similar to the one we experienced in the early 1970's, which led to the enactment of the NGPA.

a. Do you agree?

b. Please identify those features of the Administration bill which tend to create a dual market.

c. Should this be a major concern?

d. Please quantify the extent to which this might happen.

QUESTIONS FOR MR. LAWRENCE

1. On page two of your written testimony you state that:

> "The primary reason that all retail gas prices are increasing is because of increases in the wellhead price of gas. According to a recent A.G.A. analysis entitled, "Cost Components of the Average Gas Price," in 1981 60% of the average retail price of gas could be attributed to purchased gas costs, compared to 32% in 1971."

Does the study cited in your second statement really substantiate your assertion that the "primary reason that retail gas prices are increasing is because of increases in the wellhead price of gas"?

2. Table 1 of the study to which you refer actually shows the following breakdown of the average retail cost of gas in 1981:

	$/mcf	Approx. %
Gas Price (excluding taxes)	1.67	40%
Gas Transmission & Distribution	1.14	30%
Taxes	1.17	30%
RETAIL PRICES	3.98	

Thus gas prices are actually responsible for only 40% of the retail price.

a. Do you agree?

b. What are you doing to reduce the 30% of retail cost attributable to transmission and distribution costs?

3. Does not the purchase gas cost also reflect changes in a pipeline's mix of various NGPA categories?

a. Does not this indicate that wellhead price increases are responsible for something substantially less than 40% of the average retail cost of gas?

b. How much of this 40% do you feel is due to increases in wellhead costs and how much is due to changes in the mix of gas categories that the pipelines have chosen to take?

4. Please provide a breakdown of the various components of the $1.14 amount attributable to transmission and distribution costs.

a. How much has this amount increased in the last 10 years?

b. What are the primary reasons for this increase?

5. Please provide the Committee with a pipeline by pipeline breakdown of gas transmission costs since the NGPA was enacted and the projections through 1985. Please show the rate of increase for each major cost component in transmission costs for those years for each of these pipelines.

6. Page 2 of your testimony indicates that costs under the control of distribution companies has increased at an average of 5.7% per year. What percentage of the increase in residential costs is represented by this amount?

7. Please indicate what percentage of the retail cost of gas is attributable to each of the following:

Purchased gas costs (excluding taxes)
Transmission costs (excluding taxes)
Distribution costs (excluding taxes
Taxes

8. Table 2 of your study indicates that costs of "Administration" have undergone a five-fold increase in the last 10 years. What are "Administration" costs and why have they undergone such an increase?

9. What is the definition of "Net Operating Income" referred to in Table 2?

10. On the average, how much have interstate transmission companies' rates of return increased in the last 10 years?

11. Point 3 of your suggested legislative framework indicates that take-or-pay obligations in existing contracts should be reduced to a ceiling of 50% of deliverability. You further suggest that pipeline/distributor minimum bill requirements should be adjusted to reflect changes in take-or-pay levels. Why not allow distributors the same right available to pipelines, i.e. the right to reduce minimum bill requirements to 50% of contract volumes?

12. In point 4 of your suggested legislative framework you suggest that indefinite escalator clauses be capped at a level which would reflect "market conditions at that time." What factors would you use to determine "market conditions at that time"?

13. In point 7 of your suggested legislative framework you indicate that there should be some sort of "pipeline accountability" based on a "prudence standard". What do you envision a "prudence standard" would entail?

a. What prices in which pipelines have previously engaged do you feel would have been prevented under a prudence standard?

b. How do you envision that a prudence standard would be enforced?

c. Would penalties for imprudence fall on pipeline ratepayers or pipeline stockholders?

14. On page 8 of your testimony, you preface your example with the phrase "If the natural market level for gas at the present time is 55% of crude oil...". Is the 55% figure purely hypothetical or does it have a basis in fact? If it does have a basis, what are the factors and assumptions involved in establishing that basis?

15. Your example indicates that the "natural market level" for gas is $2.65. You state that a producer might be willing to allow the price for a producing well to be lowered to this level, but that few producers would undertake the risks of new drilling for the same price. If a producer will not undertake new drilling for a given price, does that not indicate that the given price may not be the "natural market level" for that gas?

16. Your testimony indicates your feeling that the passthrough limitation is too strict and unnecessarily punishes pipelines with large volumes of Section 104 gas. What would be your opinion of a passthrough limitation which limited pipelines to their system average cost plus inflation or the national average pipeline cost plus inflation, whichever is higher?

17. On page 11 of your testimony you suggest that we should have a better data base for the gas price "cap".

a. What do you propose?

b. Should renegotiated contracts be used in establishing the gas price "cap"?

QUESTION FOR MR. COOPER

Please provide the Committee with a breakdown for each of your member companies of distribution costs since the NGPA was enacted, and projections through 1985. Please show the rate of increase for each major cost component in distribution costs for those years for each of these companies.

QUESTION FOR MR. ZEIGLER

Please provide the Committee with a breakdown for each of your member companies of distribution costs since the NGPA was enacted, and projections through 1985. Please show the rate of increase for each major cost component in distribution costs for those years for each of these companies.

A.G.A. RESPONSES TO QUESTIONS FROM THE SENATE ENERGY COMMITTEE

We have marked with an asterisk those questions for which A.G.A. responses were already submitted on March 23, 1983.

Questions to Panel 3

*1. What is your best estimate of what the new maximum lawful price for natural gas will be if the fuel cap provision in S. 615 is adopted?

We cannot give you a firm estimate of the "cap" price, particularly since -- for obvious reasons -- we cannot survey our member companies regarding what prices they intend to bid at the wellhead. However, we do monitor publicly available reports on the prices that have been bid in recent months. Based on this information -- which we have taken from FERC reports and trade publications -- it appears that prices paid for newly acquired gas are currently running in the general vicinity of $3.00 per MMBtu's. We would therefore expect the initial "cap" to run within $.20 - $.30 of the $3.00 price, unless a substantial amount of gas comes under renegotiated contracts during the early months of implementation.

As for longer term estimates of the "cap" price, these would obviously depend upon assumptions regarding future levels of supply relative to demand. Since we presently expect the current gas surplus to dissipate at a relatively gradual rate, prices paid for newly acquired gas -- and hence the "cap" price -- should remain relatively moderate during the next year or so. However, if old gas decontrol were included in new legislation, wild distortions of the "cap" price might occur during "open season" on old gas contracts. This distortion would be attributable to a renegotiated increase in the average old gas price that is not offset fully by a decline in the average new gas price.

*2. What would that price be if only new contracts, and not renegotiated contracts, are included?

Over the long term, inclusion of newly renegotiated contracts would tend to reduce the "cap" price.

3. If S. 615 were adopted, what is your best estimate of how it would affect residential prices paid each year for the next five years? How would that compare with prices under the NGPA for the next five years?

A.G.A. is still in the process of evaluating S. 615. However, two recent Federal government studies do assess the potential price impacts of S. 615 (both assuming low oil prices). A study performed by the General Accounting Office[1] concluded that "over the three years 1983, 1984, and 1985, residential customers would pay, on average, $67 more (excluding inflation) for natural gas as a result of total "Price Decontrol in 1983" (a scenario similar to S. 615) "versus the NGPA or about a 3% increase due to decontrol in 1983". A study done by the Department of Energy[2] concluded that the difference in residential gas prices in 1985 between the NGPA and the legislative proposal would be $0.02 less for the legislative proposal in 1985 (because of defusion of indefinite escalators) but that by 1990 the legislative proposal (because of old gas decontrol) would cost residential consumers $0.15/Mcf more. This represents about a 2.5% increase in residential gas bills in 1990 for the Administration's Natural Gas Policy Proposal versus the NGPA.

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[1] "An Analysis of Natural Gas Pricing Alternatives" (Washington, DC: General Accounting Office), February 3, 1983.

To summarize, even though the methodologies vary, both the DOE and GAO studies arrive at similar conclusions about the impacts of the NGPA versus the Administration's proposal on consumer prices, wellhead prices, and supplies. Prices for new gas drop (and old gas rise) under a complete decontrol scenario, resulting in a negative supply response of 600 Bcf by 1990, and consumer prices will begin to rise. Old gas decontrol will wipe out price reductions that S. 615 would otherwise provide, and would have a long-term negative impact on gas supply. It should also be noted that both these analyses assume that a major price shift downward on new gas would occur in conjunction with old gas decontrol -- a highly suspect assumption. If such a reduction in new gas prices did not occur, there would be a significant increase in consumer prices. It is because of this highly questionable assumption that A.G.A. regards the above cited estimates as conservative.

4. Have you, or any of the consultants you work with, done any analysis of the supply response to the Administration's bill?

a. Specifically, what would reserve additions look like for the next five years?

b. What would the price for new supplies be, if old gas is deregulated, as compared to what the price would be if it remains regulated?

Again, A.G.A. is in the process of analyzing the S. 615 proposal. However, the two studies cited above also contain an analysis of potential wellhead and supply response under the provisions of S. 615. The GAO study concludes that the wellhead gas price would increase from $2.45/Mcf in 1982 to $3.91/Mcf (in 1982 $) in 1990 under the NGPA, and to $4.14/Mcf under the "Price Decontrol in 1983" scenario -- a difference in 1990 of $0.23/Mcf. Under the NGPA, supplies would decrease by 3 Tcf from 19.9 tcf in 1982 to 16.9 Tcf in 1990, and would decrease another 0.6 Tcf to 16.3

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[2] "Analysis of Natural Gas Consumer Regulatory Reform Legislation" (Washington, D.C., U.S. Department of Energy), February 28, 1983.

Tcf under the "Decontrol in 1983" scenario (supplies include lower-48, net imports and supplementals). In the DOE analysis, wellhead prices would increase from $2.70/Mcf in 1982 to $4.44 in 1990 under current policy (in 1982 $), and would increase to $4.55 in 1990 under the Administration's proposal -- a difference of $0.11/Mcf in 1990. Total supplies would increase from 18.9 Tcf in 1982 to 19.1 Tcf in 1990 under the NGPA, and would decrease 0.4 Tcf under the Administration's proposal, from 18.9 Tcf in 1982 to 18.5 Tcf in 1990 -- a difference of 0.6 Tcf in total supplies in 1990. Half of this decrease, or 0.3 Tcf, would occur in conventional supplies.

Criticism by gas producer representatives of these negative supply impacts have focused on their claims that old gas decontrol will result in more old gas supplies. What these assertions fail to note is that the NGPA presently provides a number of incentives for old gas, including the Section 103 step-out and in-fill drilling incentive, Section 108 stripper gas price to prevent premature abandonment, and a special procedure presently in Section 501 for hardship. Given the Section 103 and Section 108 incentive prices that are presently spurring in-fill drilling in old fields and preventing premature abandonment of old gas wells, it can effectively be argued that some old gas production will actually decline if old gas is decontrolled -- because of the loss of the Section 103 and Section 108 incentive provisions.

*5. How soon would you expect the PGA passthrough limitation in S. 615 would begin to be a problem for the pipelines?

We would expect some problems to surface immediately, since the proposed PGA ceilings would not take into account unavoidable increases in the average wellhead price due to the depletion of relatively inexpensive old gas and its replacement by comparatively more expensive new sources. The problem posed by the proposed PGA ceilings would intensify over time, as more and more old gas was renegotiated to higher price levels, and a peak might well be reached during the "open season" in 1985.

The consequences for pipeline cash flow could be quite severe. As our testimony indicates, a 1 Tcf-per-year pipeline which fails to recover $.10 per Mcf would suffer a loss of $100 million.

*6. If the passthrough limitation in S. 615 were adopted, how would your members treat payments they are contractually obligated to pay, but which they could not recover?

In some cases, pipelines would be able to recover amounts paid through "FERC out" clauses. Such clauses provide that the producer must refund dollars paid by the pipeline to the extent that FERC prevents the pipeline from passing through the full amount paid. However, "FERC out" clauses are far from universal and, to the extent that such clauses are not present in gas purchase contracts, the pipeline would face serious fiscal problems. That is, the pipeline would be forced to "eat" -- out of its profit margin -- any amounts paid for which passthrough recovery had been blocked.

*7. If old gas deregulation stays in the final bill, would you support it?

No. We would not support any bill which includes decontrol of old gas.

8. Please provide the Committee with specific statutory language for any amendments you would like to see adopted if the Committee were to use S. 615 as a mark-up vehicle for natural gas legislation.

In the time frame permitted by the Committee, we have been unable to prepare actual legislative language. We may be able to furnish you with such language in the near future.

*9. If the amendments you support are not adopted, and if you had to vote up or down on S. 615, would you support it or would you support a continuation of the existing law?

We prefer the phased decontrol schedule in the NGPA to the rapid old gas decontrol in S. 615. Our position has always been that phased new gas decontrol has the best supply incentives. Furthermore, it is unnecessary to revise the NGPA wellhead pricing scheme, since altering indefinite escalator clauses and take-or-pay requirements in gas contracts will be sufficient to stabilize gas markets.

*10. Do you feel the authority to exercise a market-out should be extended to contracts between pipelines?

A.G.A.'s Board of Directors approved -- on March 23, 1983 -- a recommendation that both pipeline to pipeline and distributor minimum bill requirements should be reduced to a degree which corresponds to any reduction in pipeline take-or-pay obligations as a result of the take-or-pay ceilings.

11. No question.

The Committee's questions appear to jump directly from Question 10 to Question 12.

*12. One of the basic objectives of the Administration bill is to create a "free market" for natural gas.

a. How would you feel about creating a free market for pipelines and local distribution companies by deregulating them completely?

We have not evaluated this possibility.

b. What if that deregulation were to occur as of January 1, 1986, so there would be a transition period, coupled with the option to abrogate your contracts, and then deregulation?

If the question refers to wellhead price deregulation on 1/1/86, we are on record as opposing old gas decontrol anytime and favoring new gas decontrol as scheduled, 1/1/85. An option to terminate all contracts simultaneously with decontrol is a way of reaching direct user/producer contracts for old gas. We think that direct user contracts for old gas should be treated just like all other contracts. If some old gas is deregulated, all old gas should be affected. Otherwise, companies that are served by pipelines or distributors are at a competitive disadvantage compared to direct users that have protected old gas contracts.

*13. Do you support the equal access provisions advocated by the witness from the Independent Petroleum Association of Mountain States, or by the witness from the Coalition for Equal Access?

No. We do not support mandatory common carriage for interstates, intrastates, or distributors. We understand that the Coalition for Equal Access and the Independent Petroleum Association of Mountain States want to include distributors and intrastates in the mandatory carriage provisions of S. 615. That would mean that FERC would have jurisdiction over intrastate and distributor capacity, curtailments, and service obligations. Regulating distributors and intrastates at the Federal level would be an unprecedented intrusion on State public utility regulation, as well as contrary to the whole philosophy of regulatory reform.

Mandatory carriage is an unnecessary regulatory complication. Voluntary third party transportation can occur where that is most feasible. We note that neither the Coalition nor the Independent Petroleum Association seems to favor incentive rates. They want common carriage but they want to pay cost of service utility rates for it.

*14. Do you all agree that, from your vantage point, decontrol of old gas is the chief issue before us in S. 615?

Not necessarily. Although our concerns regarding old gas decontrol are well known, and although we would not support legislation which includes rapid decontrol of old gas, the user access provisions of S. 615 -- when coupled with the mandatory transportation provisions -- may well be an issue of comparable importance. If S. 615's language on user access and pipeline transportation were interpreted so broadly as to allow any industrial user or powerplant to leave the gas utility system and become a direct purchaser, the impact on residential gas prices could be catastrophic. Although much depends on the interpretation and implementation of S. 615's user access/pipeline transportation provisions, a major increase in residential gas utility bills could result if our industry were no longer in a position to allocate fixed distribution system costs over a substantial number of industrial and powerplant gas users.

On another issue, we would add that the proposed PGA ceiling could pose serious problems for interstate pipelines -- although these problems would be eased significantly if old gas decontrol were deleted from the bill.

15. On page 17 of his prepared statement, Mr. McGrath foresees the Administration bill as leading to a dual market, the intrastate and the interstate market. Do all panelists agree? How, and how soon, would this happen?

The PGA limit does not restrain the price that intrastate pipelines are able to pay for new supplies. On the other hand, the passthrough ceiling definitely restrains the price that the interstates are able to pay. Thus, the PGA ceiling may create a bidding advantage for the intrastate market; it would also work to the detriment of pipelines with low average gas acquisition costs.

16. Do you believe that parties to direct sales contracts, as well as parties for first sale or sale for resale contracts, should be able to take advantage of the Administration's market-out provision? What about minimum bill contracts between pipelines, and contracts between pipelines and local distribution companies?

If old gas decontrol (with associated market out authority for old gas producers) is indeed enacted, equity demands that direct purchase contracts should be affected. Otherwise, companies with direct purchase contracts will have an unfair competitive advantage over companies served by pipelines or distributor companies.

Incidentally, we find it interesting -- not surprising, but interesting -- that some companies which have been vigorously advocating old gas decontrol, for gas under contract to other purchasers, are now endeavoring to exclude their own direct purchase contracts from the market out provisions.

As for distributor and pipeline/pipeline minimum bill requirements, A.G.A.'s Board of Directors approved -- on March 23, 1983 -- a recommendation that such requirements should be reduced to a degree which corresponds to any reduction in pipeline take-or-pay obligations as a result of the take-or-pay ceilings.

*17. Several panel members advocate repeal of fuel use restrictions in the Powerplant Industrial Fuel Use Act.

a. What markets or users would you expect to serve if PIFUA is repealed?

We would be in a position to compete for gas service to large new industrial facilities and large new powerplants. We would expect to be much more competitive in seeking large new industrial users than in seeking large new powerplant users, since many electric utilities would probably opt for coal-fired or nuclear baseload powerplants even if the FUA were not a factor. However, even in the powerplant sector, we would anticipate some growth -- partly because of general environmental and maintenance advantages of gas use and partly because FUA reform would permit us to pursue more freely the concept of the "select" use of gas, in conjunction with coal or oil, for purposes of environmental compliance. (Under the "select use" approach, a powerplant would burn just enough gas --

as a secondary fuel -- to offset some or all of the increased emissions from the primary fuel.)

We also wish to stress an additional point. Although the FUA (as currently implemented) bans use of oil or gas only in the case of large new facilities, we have found that it has a definite "spill-over" effect. That is, we sometimes encounter potential industrial and powerplant customers who think they are covered by the FUA even when they are not -- and we suspect that this misconception about FUA may be widespread.

We also sometimes encounter potential customers who might well qualify for one of the numerous exemptions from FUA coverage -- but such customers can be deterred by the delay and uncertainty in filing for a FUA exemption. (Although the ERA has made a very welcome effort to simplify and expedite FUA exemption procedures, this problem still persists.)

b. What price would you expect those users to pay?

We would expect them to pay a price that is competitive, when both price and non-price factors (such as environmental requirements) are considered, with alternative fuel choices. Obviously, if gas prices are not competitive under these circumstances, removal of the FUA and incremental pricing will not help us to pick up load. However, if the price relief provisions of S. 615 (or alternative legislation) are enacted and if rapid decontrol of old gas is not enacted, we believe that the gas industry will be able to maintain a competitive position.

c. What volumes would you expect to sell to those new users?

There are too many variables involved for us to quantify our market growth potential if the FUA and incremental pricing are repealed. As noted above, other governmental policies -- such as the scope of decontrol and the nature of environmental standards -- will affect, positively or negatively, our ability to take full advantage of the removal of gas marketing constraints. We would expect, over the long term, that removal of these restraints would permit otherwise unattainable market growth under almost any plausible scenario -- but the extent of that growth would be greatly affected by a number of variable factors.

*18. Section 405 of S. 615 makes the contract carrier authorization applicable only in a limited set of circumstances. In short, the pipeline previously carrying the gas would have to carry it for a new purchaser. Would you support expanding this requirement so that any pipeline, interstate or intrastate, could be required to carry gas for any other purchaser?

No. We are not in favor of mandatory transportation for either interstate or intrastate pipelines, unless a pipeline exercises a market-out, as proposed in several gas pricing bills -- and even then it should be carefully limited to accomplish only the purpose intended. Mandatory carriage would create severe administrative problems at FERC. In addition, covering intrastate pipelines under mandatory carriage provisions would subject intrastates to Federal jurisdiction and reverse an exclusion from Federal regulation that has been effective for nearly half a century. We should reduce government regulation, not increase it. Mandatory carriage is really not necessary. Pipelines transport gas for others today.

*19. In simplest terms, the Administration's proposal attempts to keep gas prices flat between now and 1986 while old gas contracts are renegotiated. This will be accomplished by reducing new gas prices. How can anyone explain to the public that this is a good idea when they know that the new gas sources are where we get our new production?

This is a good question -- and we hope that you will ask it to the Administration. For our part, we have seen no convincing proof that old gas decontrol would significantly increase old gas supplies but we do have reason to believe that it would depress the development of new gas supplies. Indeed, this is one of the primary reasons why we oppose rapid decontrol of old gas; we believe that the gas consumer should at least be able to attain more supply security if he is going to be paying more dollars for his gas. Under S. 615 as presently drafted, with its upward pressure on old gas prices and its adverse impact on new gas production, he is likely to be paying more dollars for less gas.

20. What assurances are there that after 1/1/85 gas producers won't just unilaterally abandon old gas contracts and withhold supplies from the market until their price demands are met?

Although the cash flow requirements and lease obligations of some producers would prevent them from initiating such a tactic, we cannot guarantee that all producers would be unable to withhold old gas production as a means of gaining bargaining leverage.

a. Given the passthrough limitation, how could pipelines agree to these demands?

In many cases, a pipeline might decide to forego the supplies involved if such a situation developed. In other cases, a pipeline might agree to pay a higher price and hope that FERC would approve passthrough in light of the circumstances involved and the threat to long-term supply security. The responses would doubtless vary from situation to situation and from company to company.

b. How do you see this confrontation being resolved so as to keep needed supplies flowing?

The obvious solution is avoidance of old gas decontrol. Otherwise, given the hypothetical situation described, only three possible outcomes could occur (all of them detrimental): 1) reduced supply security for the pipeline's customers (due to loss of the supplies involved); 2) higher prices for gas consumers (due to payment of higher prices and subsequent approval of passthrough); or 3) impairment of the pipeline's financial position (due to payment of higher prices by the pipeline and subsequent FERC denial of cost recovery).

21. Could you discuss the gamesmanship or the psychology that would likely occur under S. 615 if a producer comes to the pipeline with which he has a contract on the day after enactment of S. 615 and says, "Let's agree to an insignificant amendment to our contract as that will constitute a renegotiation and deregulate us from price controls and non-price regulation, although the significant aspects of our contract will remain in effect." How is a pipeline likely to react to that offer?

We cannot speak on behalf of our member companies regarding how they would conduct their contract negotiations. We can only say that the pipeline responses would be likely to differ from pipeline to pipeline and from contract to contract. For example, if a contract's current terms provide for a reasonable fixed price (or a reasonable escalator clause), the response might be different from the response if a contract's current terms provide for indexing the gas price to 120% of crude oil and for particularly onerous take-or-pay obligations.

22. Several panel members discussed the fact that gas prices are nearing and in some cases exceeding No. 6 oil prices in several markets. What is the best, most reliable, up to date source of data to turn to for prices paid for both gas and No. 6 and No. 2 oil in various cities or regions for the industrial market? Please summarize this data for the Committee.

A.G.A. collects competitive industrial oil and gas prices for a limited sample of cities on a semi-annual basis. These data are used in our Survey of Industrial Fuel Switching and Alternative Fuel Capability analysis series (see attached). Several private consulting firms or publishers, such as Platts Oilgram, and the Lundberg letter, also compile such data in some form for their readers or clients.

23. Testimony before the Committee has suggested that enactment of the Administration proposal would lead to a dual market for natural gas, similar to the one we experienced in the early 1970's, which led to enactment of the NGPA.

a. Do you agree?

Yes. This is a real possibility.

b. Please identify those features of the Administration bill which tend to create a dual market.

Two primary features can be identified: 1) the proposed imposition of rigid PGA ceilings upon interstate pipelines, while intrastate pipelines are not similarly encumbered; and 2) the proposed user access provisions, which -- if interpreted and implemented broadly -- would greatly increase competition for gas at the wellhead at the very same time that the bidding ability of interstate pipelines would be crippled by the proposed PGA passthrough ceilings. The impact of these basic factors would then be magnified dramatically by: 3) the "open season" on gas contracts in 1985, which would open all of an interstate pipeline's gas supply to acquisition by the highest bidder (with many of the competing bidders not bound by rigid PGA restrictions); and 4) old gas decontrol, with resulting upward price pressure that would tighten the noose of the PGA ceilings.

c. Should this be a major concern?

Yes. We are talking about a combination of factors whose cumulative impact could well be this: a situation in which interstate pipelines can only obtain -- or retain -- the "leftovers" which remain after intrastate pipelines and other purchasers have fully satisfied both their short-term and long-term supply requirements. These "leftovers" might not be enough to avoid curtailments of an interstate pipeline's regular customers.

(We also note that the "open season" provisions would have the deleterious effect of channeling capital into acquisition of another purchaser's supplies -- rather than into the development of a purchaser's own new supplies.)

d. Please quantify the extent to which this might happen.

No quantitative estimates are presently available.

Questions to Mr. Lawrence

1. On page two of your written testimony you state that: the primary reason that all retail gas prices are increasing is because of increases in the wellhead price of gas. According to a recent A.G.A. analysis entitled, "Cost Components of the Average Gas Price", "in 1981 60% of the average retail price of gas could be attributed to purchased gas costs, compared to 32% in 1971." Does the study cited in your second statement really substantiate your assertion that the "primary reason that retail gas prices are increasing is because of increases in the wellhead price of gas"?

Yes. In Table 4 of the energy analysis, it can be seen that purchase gas costs were $0.22/Mcf in 1971 and $2.24 in 1981 -- an increase of $2.02/Mcf. Retail gas prices increased by $3.05/Mcf over the same period, from $0.69/Mcf in 1971 to $3.74/Mcf in 1981. Therefore, purchased gas costs accounted for 66% of the increase in average retail gas prices when 1971 is compared to 1981. Purchased gas costs include gathering costs, severance taxes and supplemental gas costs. Wellhead gas prices alone, over the same 1971-81 period, increased an average of 27% per year (a greater percentage increase than purchase gas costs) -- from $.18/Mcf in 1971 to $1.99/Mcf in 1981.

2. Table 1 of the study to which you refer actually shows the following breakdown of the average retail cost of gas in 1981:

	$/mcf	Approx. %
Gas Price (excluding taxes)	1.67	40%
Gas Transmission & Distribution	1.14	30%
Taxes	1.17	30%
RETAIL PRICE	3.98	

Thus gas prices are actually responsible for only 40% of the retail price.

a. Do you agree?

No. Taxes are imbedded in all commodity prices, and, are a normal part of doing business. Further, as noted in the analysis, the tax burden on gas transmission and distribution industry is significantly higher than the average for all industries. In 1979 (the latest year Internal Revenue Service data are available for all industries) federal, state and local taxes for the gas transmission and distribution industry were equal to 95% of net income -- compared to the average of 60% for all industries. As shown in the tabele below, with the $1.17 of taxes removed from the average retail gas price of $3.98, the purchased gas cost is 60% of the sum of producer, transmission and distribution costs ($1.67/2.81).

b. What are you doing to reduce the 30% of retail cost attributable to transmission and distribution costs?

We believe the gas industry has reduced costs over a period of rising capital, labor and materials costs. Included in transmission and distribution costs are compressor gas costs and storage gas costs, which are directly related to wellhead gas prices. Costs in the control of the transmission and distribution industry declined as a percentage of the retail gas price from 49% in 1981 to 28% in 1981.

1981 Retail Gas Price/Mcf

	Cost by Industry Sector (including taxes)	Cost by Industry Sector (excluding taxes)
Purchased gas cost	$2.24	$1.67
Transmission costs	0.70	0.46
Distribution costs	0.80	0.68
Retail Gas Price (excluding sales tax)	$3.74	$2.81

3. Does not the purchase gas cost also reflect changes in a pipeline's mix of various NGPA categories?

a. Does not this indicate that wellhead price increases are responsible for something substantially less than 40% of the average retail cost of gas?

The purchase gas cost includes gathering, supplemental and wellhead gas costs. All of these components are necessary for the pipeline to purchase gas and maintain service to all customers. According to Energy Information Administration data, the average wellhead gas price, as reported by producers, has increased from $0.18 Mcf in 1971 to $1.99 Mcf in 1981. This is 60% of the increase in retail gas prices (1.81/3.05).

b. Pipelines try to minimize purchase gas costs, but cannot do so in many cases because of take or pay clauses in gas purchase contracts which prevent gas from being purchased on a "least cost" basis.

Between October 1981, and October 1982, the wellhead price of gas increased about 21%; NGPA allows most categories to increase at or slightly above the rate of inflation. Thus more than half of the increase in wellhead prices is due to vintaging, not price increases within NGPA categories.

4. Please provide a breakdown of the various components of the $1.14 amount attributable to transmission and distribution costs.

a. How much has this amount increased in the last 10 years?

b. What are the primary reasons for this increase?

Of the $1.14 of the retail gas price attributable to transmission and distribution costs (excluding taxes) $0.46 can be allocated the transmission portion and $0.68 the distribution portion.

a&b. Costs within the control of the gas transmission industry include: 1) storage and transmission (i.e., pipeline operating and maintenance, compressor gas and storage gas costs). Between 1971 and 1981, this cost category increased at an average of 21% per year; 2) administration, which includes customer service, sales, and general administration -- this category increased at an average of 17% per year; 3) depreciation costs, which increased at 10% per year; 4) net operating income, which increased at 8% per year. In total, these costs increased at an average of 13.4% per year between 1971 and 1981.

In the distribution segment, distribution and storage costs for local main operation and maintenance increased at 6% per year between 1971 and 1981. Administration, including customer service, sales and general administration, increased at 7% per year, depreciation increased at 5% per year, and net operating income increased at 4% per year. In total, these costs increased at an average of 5.7% per year between 1971 and 1981 -- less than inflation.

5. Please provide the Committee with a pipeline by pipeline breakdown of gas transmission costs since the NGPA was enacted and the projections through 1985. Please show the rate of increase for each major cost component in transmission costs for those years for each of these pipelines.

A.G.A. does not collect this type of information.

6. Page 2 of your testimony indicates that costs under the control of distribution companies has increased at an average of 5.7% per year. What percentage of the increase in residential costs is represented by this amount?

The U.S. average residential gas price in 1981 was $4.27/Mcf (compared to the U.S. average retail price of $3.74). Of this price, approximately 14% was attributable to gas distribution costs for operating and maintenance, depreciation, and net operating income. These costs increased at an average of 5.7% per year between 1971 and 1981.

7. Please indicate what percentage of the retail cost of gas is attributable to each of the following:

Purchased gas costs (excluding taxes)
Transmission costs (excluding taxes)
Distribution costs (excluding taxes)
Taxes

Question 4 outlines purchased gas costs, transmission costs and distribution costs and taxes as a percentage of the retail gas price.

1981 Retail Gas Price

	Cost	Estimated Tax Portion	Total	%
Purchased Gas Cost	$1.67	$0.57	$2.24	56
Transmission Co. Costs[1]	0.46	0.24[1]	0.70	18
Distribution Co. Costs	0.68	0.12	0.80	20
Sales Taxes	--	0.24	0.24	6
	$2.81	$1.17	$3.98	100%

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1. Includes severance taxes.

8. Table 2 of your study indicates that costs of "Administration" have undergone a five-fold increase in the last 10 years. What are "Administration" costs and why have they undergone such an increase?

Administration costs for transmission companies (Table 2) include customer accounts, sales, general administration and customer service. These categories include labor, overhead building and marketing costs. Administration costs are only 2% of transmission company revenues.

9. What is the definition of "Net Operating Income" referred to in Table 2?

Net operating income is equal to total operating revenues minus total operating expenses. It does not include other operating income, AFUDC, interest charges, or extraordinary items (less taxes).

10. On the average, how much have interstate transmission companies' rates of return increased in the last 10 years?

According to A.G.A. Gas Facts data, the return on equity for transmission companies increased from 10.0% in 1973 to 17.7% in 1981. (Data prior to 1973 are not comparable to 1981 due to an FPC ruling.) Return on equity is defined as income available for common stocks as a percent of common equity at fiscal year end. Moody's Public Utility Manual, 1981, showed a return on equity for 12 major interstate pipelines of 16.9% in 1981 compared to 13.6% in 1971.

11. Point 3 of your suggested legislative framework indicates that take-or-pay obligations in existing contracts should be reduced to a ceiling of 50% of deliverability. You further suggested that pipeline/distributor minimum bill requirements should be adjusted to reflect changes in take-or-pay levels. Why not allow distributors the same right available to pipelines, i.e. the right to reduce minimum bill requirements to 50% of contract volumes?

As noted earlier, A.G.A.'s Board of Directors endorsed -- on March 23, 1983 -- the proposition that distributor minimum bill requirements should be reduced to a degree that corresponds to any reduction in pipeline take-or-pay obligations at the wellhead as a result of the take-or-pay ceiling.

*12. In point 4 of your suggested legislative framework you suggest that indefinite escalator clauses be capped at a level which would reflect "market conditions at that time." What factors would you use to determine "market conditions at that time"?

The price paid in new and renegotiated contracts is the best indicator of market conditions. If a "cap" is enacted, it is important to use enough contracts to calculate the cap so that a few very high priced contracts, for example, do not skew the cap substantially upward.

13. In point 7 of your suggested legislative framework you indicate that there should be some sort of "pipeline accountability" based on a "prudence standard". What do you envision a "prudence standard" would entail?

We are not prepared to spell out the statutory details of "prudence standard" at this time.

*14. On page 8 of your testimony, you preface your example with the phrase "If the natural market level for gas at the present time is 55% of crude oil . . .". Is the 55% figure purely hypothetical or does it have a basis in fact? If it does have a basis, what are the factors and assumptions involved in establishing that basis?

The figure is not purely hypothetical but neither is it very precise. Basically, 55% of crude oil is our rough estimate of the national average wellhead price at which fuel-switching to high-sulfur residual oil can be avoided. The burner tip price of high-sulfur residual oil was selected as a benchmark because this is generally the least expensive fuel that competes against us in our most price-sensitive markets (i.e., the powerplant and industrial boiler fuel markets). If gas becomes uncompetitive with high-sulfur residual oil, we will not be able to retain our current load profile; we will either lose a substantial amount of load, or we will be compelled to substitute (if possible) new markets in which we compete against more expensive energy sources, or a combination of the two.

Nevertheless, burner tip parity with high-sulfur residual oil should be viewed as only the most general of indicators of the natural market level of gas at the wellhead. On the one hand, we could retain burner tip parity with high-sulfur residual oil and still trigger load loss due to price-induced conservation or plant shutdowns. Conversely, for local distribution companies that do not serve significant boiler fuel markets, burner tip parity with high-sulfur residual oil might be substantially exceeded without triggering substantial load loss in a service area where distillate oil and/or electricity are the primary competing fuels. (Indeed, in some distribution company service areas the attainment of burner tip parity with high-sulfur residual oil may be a practical impossibility -- due to distance from the wellhead and correspondingly large transmission cost "add ons" to the wellhead price.)

Thus, when it comes to estimating the so-called "market clearing price" for gas at the wellhead, only the marketplace knows for sure. Basing policy on surrogates for the market can be a dangerously imprecise game -- which is one reason why any "cap" should be based on actual prices paid for newly acquired gas, and gas under newly renegotiated contracts, rather than on some academic estimate of what the "market clearing price" is supposed to be.

*15. Your example indicates that the "natural market level" for gas is $2.65. You state that a producer might be willing to allow the price for a producing well to be lowered to this level, but that few producers would undertake the risks of new drilling for the same price. If a producer will not undertake new drilling for a given price, does that not indicate that the given price may not be the "natural market level" for that gas?

The "natural market level" for gas at the wellhead is an average price -- not necessarily a uniform price. This average price can mask above average prices needed as an incentive for new exploration and drilling (or for other reasons related to optimizing gas supply), but obviously this process requires that prices paid for some gas supplies be held below the average wellhead price level. We believe that, even in a completely undistorted free market at the wellhead, a range of prices paid would develop -- with purchasers paying below average prices for some gas (generally gas from sources with a relatively low supply payoff) and above average prices for other gas (generally gas from sources with a relatively high supply payoff).

*16. Your testimony indicates your feeling that the passthrough limitation is too strict and unnecessarily punishes pipelines with large volumes of Section 104 gas. What would be your opinion of a passthrough limitation which limited pipelines to their system average cost plus inflation or the national average pipeline cost plus inflation, whichever is higher?

The suggested approach would help -- but it would not help enough to solve the special problems that rigid PGA ceilings would pose for pipelines with below average gas acquisition costs.

To illustrate this point, let us assume the existence of two hypothetical pipelines. One has an average gas acquisition cost of $2.50 per MMBtu's while the other has an average gas acquisition cost of $3.00. Let us further assume that the national average gas acquisition cost is halfway between the two pipelines (or $2.75) and that the applicable inflation adjustment, for the relevant six-month PGA period, is 5%. If system acquisition cost plus inflation is the standard, the average wellhead price paid by the low-cost pipeline could rise to $2.63; the other pipeline's average price could rise to $3.15. Thus, a gap of $.52 would exist.

If the low-cost pipeline is instead allowed to charge the national average gas acquisition cost plus inflation, its average wellhead price could rise to $2.89. This would cut in half the gap between the two pipelines -- thereby providing noticeable relief -- but a gap of $.26 would nevertheless remain. This gap is still large enough to be decisive if the two pipelines are bidding against each other for gas supplies.

Indeed, the high-cost pipeline might be in a position to "raid" the low-cost pipeline's supplies during "open season" in 1985.

Among other negative impacts, such "raiding" during "open season" would divert capital toward battles over proportionate shares of a fixed supply pie -- and away from investments, in new gas development, that could lead to a bigger supply pie.

The best solution to these problems, we believe, is a decision to avoid both rigid PGA ceilings and old gas decontrol.

*17. On page 11 of your testimony you suggest that we should have a better data base for the gas price "cap".

a. What do you propose?

Apart from retaining the proposed inclusion of newly renegotiated contracts, we favor: a) avoiding the use of estimated future production to the maximum extent feasible; and b) explicitly allowing FERC not to publish a "cap" price whenever it determines that the sample of contracts is not sufficient to provide an adequate data base. (In such a case, NGPA ceilings would apply.)

b. Should renegotiated contracts be used in establishing the gas price "cap"?

The data base should include a statistically significant number of new and renegotiated contracts. In these days of surplus gas and high new gas prices, there may not be enough new contracts to calculate a cap; therefore, we must include renegotiated contracts which reflect market realities just as accurately as new contracts.

Yes. Renegotiated contracts are also indicative of market conditions -- just as newly negotiated contracts are. In addition, inclusion of renegotiated contracts will expand and improve the statistical base for the "cap".

Other Questions

1. Please provide the Committee with the specific legislative language necessary to implement those changes to the Administration's bill, S. 615, that you identified in your oral and written testimony as being necessary. Also please provide the Committee a justification for each of your recommended changes.

In the time frame permitted by the Committee, we have been unable to prepare actual legislative language. We may be able to furnish you with such language in the near future.

2. Please provide the Committee with your estimate of the amount by which gas prices would increase or decrease, both over the short-run and over the long-run if S. 615, is enacted.

As noted in our review of the GAO and DOE studies, S. 615 is based on the theory that old gas price increases would be fully offset by declines in prices paid for new and deep gas. A.G.A. does not accept the "seesaw" theory. While old gas (particularly Sec. 104 and 106a), in theory, would double its price, the price for new Section 102 gas would have to drop 20% and Sec. 107 gas would have to drop 60% in order to reach our estimate of the market clearing level of $2.70/MMBtu (at 55% of $28.50 crude oil). In practice, A.G.A. believes that new gas prices would not fall far enough to effectively offset the increase in wellhead gas prices caused by old gas decontrol.

3. Please provide the Committee with your estimate of the amount by which gas supplies and gas reserves would increase or decrease, both over the short-run and over the long-run, if S. 615 is enacted.

The GAO and DOE studies cited above note that gas supplies would be 600 Bcf lower in 1990 under the S. 615. We view such estimates as conservative.

4. Please provide the Committee with your estimate of the level of the gas cap if S. 615 were enacted today and the amount by which the cap would reduce average purchased gas costs.

A.G.A. simulations indicate that on a national basis gas can compete with residual fuel oil in the industrial sector when wellhead gas prices approximate 55% of the price of crude oil at the wellhead. Assuming an average crude oil price of $28.50/barrel, this level is $2.70/MMBtu. In early 1983, the average price for new Section 102 gas is $3.35, and deep and tight sands gas is about $7.00. It should be noted that these prices exclude taxes and gathering charges, with new gas (Section 102) presently costing pipelines about $3.60/MMBtu.

As noted earlier, prices paid for newly acquired gas currently appear to be running in the vincinity of $3.00 per MMBtu's. We would expect the initial level of the "cap" price to fall in this range -- perhaps bringing down prices now paid for Section 102 gas, under escalator clauses which "track" the ceiling price of $3.35.

5. Some witnesses appearing before the Committee have suggested that enactment of S. 615 would bring about chaos in the gas market. Please provide the Committee with your assessment of the prospect of that occurring.

S. 615 deregulates gas on 1/1/85 (with across-the-board market outs) and then once again on 1/1/86. This scheme has been compared to shuffling a deck by throwing all the cards up in the air at once, collecting them, and then throwing them up again. Simultaneously, the bill allows hundreds on new buyers to compete at the wellhead for gas and creates a new regulatory arm at FERC to handle hundreds of requests from buyers and sellers for mandatory gas transportation. All this will happen over 2 - 3 years. It seems to us that chaos is not a bad description of gas markets if S. 615 is enacted.

American Gas Association
March 24, 1983

A.G.A. RESPONSES TO QUESTIONS FROM THE SENATE ENERGY COMMITTEE

In the time frame permitted, the American Gas Association has been able to answer only some of the Committee's questions. Other responses will be forthcoming as soon as possible.

Questions to Panel 3

1. What is your best estimate of what the new maximum lawful price for natural gas will be if the fuel cap provision in S. 615 is adopted?

We cannot give you a firm estimate of the "cap" price, particularly since -- for obvious reasons -- we cannot survey our member companies regarding what prices they intend to bid at the wellhead. However, we do monitor publicly available reports on the prices that have been bid in recent months. Based on this information -- which we have taken from FERC reports and trade publications -- it appears that prices paid for newly acquired gas are currently running in the general vicinity of $3.00 per MMBtu's. We would therefore expect the initial "cap" to run within $.20 - $.30 of the $3.00 price, unless a substantial amount of gas comes under renegotiated contracts during the early months of implementation.

As for longer term estimates of the "cap" price, these would obviously depend upon assumptions regarding future levels of supply relative to demand. Since we presently expect the current gas surplus to dissipate at a relatively gradual rate, prices paid for newly acquired gas -- and hence the "cap" price -- should remain relatively moderate during the next year or so. However, wild distortions of the "cap" price might occur in 1985 if the "open season" on old gas contracts takes effect as currently proposed. This distortion would be attributable to a renegotiated increase in the average old gas price that is not offset fully by a decline in the average new gas price.

2. What would that price be if only new contracts, and not renegotiated contracts, are included?

Over the long term, inclusion of newly renegotiated contracts would tend to reduce the "cap" price.

5. How soon would you expect the PGA passthrough limitation in S. 615 would begin to be a problem for the pipelines?

We would expect some problems to surface immediately, since the proposed PGA ceilings would not take into account unavoidable increases in the average wellhead price due to the depletion of relatively inexpensive old gas and its replacement by comparatively more expensive new sources. The problem posed by the proposed PGA ceilings would intensify over time, as more and more old gas was renegotiated to higher price levels, and a peak might well be reached during the "open season" in 1985.

The consequences for pipeline cash flow could be quite severe. As our testimony indicates, a 1 Tcf-per-year pipeline which fails to recover $.10 per Mcf would suffer a loss of $100 million.

6. If the passthrough limitation in S. 615 were adopted, how would your members treat payments they are contractually obligated to pay, but which they could not recover?

In some cases, pipelines would be able to recover amounts paid through "FERC out" clauses. Such clauses provide that the producer must refund dollars paid by the pipeline to the extent that FERC prevents the pipeline from passing through the full amount paid. However, "FERC out" clauses are far from universal and, to the extent that such clauses are not present in gas purchase contracts, the pipeline would face serious fiscal problems. That is, the pipeline would be forced to "eat" -- out of its profit margin -- any amounts paid for which passthrough recovery had been blocked.

7. If old gas deregulation stays in the final bill, would you support it?

No. We would not support any bill which includes decontrol of old gas.

9. If the amendments you support are not adopted, and if you had to vote up or down on S. 615, would you support it or would you support a continuation of the existing law?

We prefer the phased decontrol schedule in the NGPA to the rapid old gas decontrol in S. 615. Our position has always been that phased new gas decontrol has the best supply incentives. Furthermore, it is unnecessary to revise the NGPA wellhead pricing scheme, since altering indefinite escalator clauses and take-or-pay requirements in gas contracts will be sufficient to stabilize gas markets.

10. Do you feel the authority to exercise a market-out should be extended to contracts between pipelines?

Our pipelines have not told us that they need market-out clauses in pipeline/pipeline contracts.

12. One of the basic objectives of the Administration bill is to create a "free market" for natural gas.

a. How would you feel about creating a free market for pipelines and local distribution companies by deregulating them completely?

We have not evaluated this possibility.

b. What if that deregulation were to occur as of January 1, 1986, so there would be a transition period, coupled with the option to abrogate your contracts, and then deregulation?

If the question refers to wellhead price deregulation on 1/1/86, we are on record as opposing old gas decontrol anytime and favoring new gas decontrol as scheduled, 1/1/85. An option to terminate all contracts simultaneously with decontrol is a way of reaching direct user/producer contracts for old gas. We think that direct user contracts for old gas should be treated just like all other contracts. If some old gas is deregulated, all old gas should be affected. Otherwise, companies that are served by pipelines or distributors are at a competitive disadvantage compared to direct users that have protected old gas contracts.

13. Do you support the equal access provisions advocated by the witness from the Independent Petroleum Association of Mountain States, or by the witness from the Coalition for Equal Access?

No. We do not support mandatory common carriage for interstates, intrastates, or distributors. We understand that the Coalition for Equal Access and the Independent Petroleum Association of Mountain States want to include distributors and intrastates in the mandatory carriage provisions of S. 615. That would mean that FERC would have jurisdiction over intrastate and distributor capacity, curtailments, and service obligations. Regulating distributors and intrastates at the Federal level would be an unprecedented intrusion on State public utility regulation, as well as contrary to the whole philosophy of regulatory reform.

Mandatory carriage is an unnecessary regulatory complication. An adequate incentive rate is all that is needed to encourage third party transportation. We note that neither the Coalition nor the Independent Petroleum Association seems to favor incentive rates. They want common carriage but they want to pay cost of service utility rates for it.

14. Do you all agree that, from your vantage point, decontrol of old gas is the chief issue before us in S. 615?

Not necessarily. Although our concerns regarding old gas decontrol are well known, and although we would not support legislation which includes rapid decontrol of old gas, the user access provisions of S. 615 -- when coupled with the mandatory transportation provisions -- may well be an issue of comparable importance. If S. 615's language on user access and pipeline transportation were interpreted so broadly as to allow any industrial user or powerplant to leave the gas utility system and become a direct purchaser, the impact on residential gas prices could be catastrophic. Although much depends on the interpretation and implementation of S. 615's user access/pipeline transportation provisions, a major increase in residential gas utility bills could result if our industry were no longer in a position to allocate fixed distribution system costs over a substantial number of industrial and powerplant gas users.

On another issue, we would add that the proposed PGA ceiling could pose serious problems for interstate pipelines -- although these problems would be eased significantly if old gas decontrol were deleted from the bill.

17. Several panel members advocate repeal of fuel use restrictions in the Powerplant Industrial Fuel Use Act.

a. What markets or users would you expect to serve if PIFUA is repealed?

We would be in a position to compete for gas service to large new industrial facilities and large new powerplants. We would expect to be much more competitive in seeking large new industrial users than in seeking large new powerplant users, since many electric utilities would probably opt for coal-fired or nuclear baseload powerplants even if the FUA were not a factor. However, even in the powerplant sector, we would anticipate some growth -- partly because of general environmental and maintenance advantages of gas use and partly because FUA reform would permit us to pursue more freely the concept of the "select" use of gas, in conjunction with coal or oil, for purposes of environmental compliance. (Under the "select use" approach, a powerplant would burn just enough gas -- as a secondary fuel -- to offset some or all of the increased emissions from the primary fuel.)

We also wish to stress an additional point. Although the FUA (as currently implemented) bans use of oil or gas only in the case of large new facilities, we have found that it has a definite "spill-over" effect. That is, we sometimes encounter potential industrial and powerplant customers who think they are covered by the FUA even when they are not -- and we suspect that this misconception about FUA may be widespread.

We also sometimes encounter potential customers who might well qualify for one of the numerous exemptions from FUA coverage -- but such customers can be deterred by the delay and uncertainty in filing for a FUA exemption. (Although the ERA has made a very welcome effort to simplify and expedite FUA exemption procedures, this problem still persists.)

b. What price would you expect those users to pay?

We would expect them to pay a price that is competitive, when both price and non-price factors (such as environmental requirements) are considered, with alternative fuel choices. Obviously, if gas prices are not competitive under these circumstances, removal of the FUA and incremental pricing will not help us to pick up load. However, if the price relief provisions of S. 615 (or alternative legislation) are enacted and if rapid decontrol of old gas is not enacted, we believe that the gas industry will be able to maintain a competitive position.

c. What volumes would you expect to sell to those new users?

There are too many variables involved for us to quantify our market growth potential if the FUA and incremental pricing are repealed. As noted above, other governmental policies -- such as the scope of decontrol and the nature of environmental standards -- will affect, positively or negatively, our ability to take full advantage of the removal of gas marketing constraints. We would expect, over the long term, that removal of these restraints would permit otherwise unattainable market growth under almost any plausible scenario -- but the extent of that growth would be greatly affected by a number of variable factors.

18. Section 405 of S. 615 makes the contract carrier authorization applicable only in a limited set of circumstances. In short, the pipeline previously carrying the gas would have to carry it for a new purchaser. Would you support expanding this requirement so that any pipeline, interstate or intrastate, could be required to carry gas for any other purchaser?

No. We are not in favor of mandatory transportation for either interstate or intrastate pipelines, unless a pipeline exercises a market-out, as proposed in several gas pricing bills. Mandatory carriage would create severe administrative problems at FERC. In addition, covering intrastate under mandatory carriage provisions would subject intrastate to Federal jurisdiction and reverse an exclusion from Federal regulation that has been effective for nearly half a century. We should reduce government regulation, not increase it. Mandatory carriage is really not necessary. Pipelines transport gas for others today. An adequate incentive rate is enough to open the transportation market.

19. In simplest terms, the Administration's proposal attempts to keep gas prices flat between now and 1986 while old gas contracts are renegotiated. This will be accomplished by reducing new gas prices. How can anyone explain to the public that this is a good idea when they know that the new gas sources are where we get our new production?

This is a good question -- and we hope that you will ask it to the Administration. For our part, we have seen no convincing proof that old gas decontrol would significantly increase old gas supplies but we do have reason to believe that it would depress the development of new gas supplies. Indeed, this is one of the primary reasons why we oppose rapid decontrol of old gas; we believe that the gas consumer should at least be able to attain more supply security if he is going to be paying more dollars for his gas. Under S. 615 as presently drafted, with its upward pressure on old gas prices and its adverse impact on new gas production, he is likely to be paying more dollars for less gas.

Questions to Mr. Lawrence

12. In point 4 of your suggested legislative framework you suggest that indefinite escalator clauses be capped at a level which would reflect "market conditions at that time." What factors would you use to determine "market conditions at that time"?

The price paid in new and renegotiated contracts is the best indicator of market conditions. It is important to use enough contracts to calculate the cap so that a few very high priced contracts, for example, do not skew the cap substantially upward.

14. On page 8 of your testimony, you preface your example with the phrase "If the natural market level for gas at the present time is 55% of crude oil . . .". Is the 55% figure purely hypothetical or does it have a basis in fact? If it does have a basis, what are the factors and assumptions involved in establishing that basis?

The figure is not purely hypothetical but neither is it very precise. Basically, 55% of crude oil is our rough estimate of the national average wellhead price at which fuel-switching to high-sulfur residual oil can be avoided. The burner tip price of high-sulfur residual oil was selected as a benchmark because this is generally the least expensive fuel that competes against us in our most price-sensitive markets (i.e., the powerplant and industrial boiler fuel markets). If gas becomes uncompetitive with high-sulfur residual oil, we will not be able to retain our current load profile; we will either lose a substantial amount of load, or we will be compelled to substitute (if possible) new markets in which we compete against more expensive energy sources, or a combination of the two.

Nevertheless, burner tip parity with high-sulfur residual oil should be viewed as only the most general of indicators of the natural market level of gas at the wellhead. On the one hand, we could retain burner tip parity with high-sulfur residual oil and still trigger load loss due to price-induced conservation or plant shutdowns. Conversely, for local distribution companies that do not serve significant boiler fuel markets, burner tip parity with high-sulfur residual oil might be substantially exceeded without triggering substantial load loss in a service area where distillate oil and/or electricity are the primary competing fuels. (Indeed, in some distribution company service areas the attainment of burner tip parity with high-sulfur residual oil may be a practical impossibility -- due to distance from the wellhead and correspondingly large transmission cost "add ons" to the wellhead price.)

Thus, when it comes to estimating the so-called "market clearing price" for gas at the wellhead, only the marketplace knows for sure. Basing policy on surrogates for the market can be a dangerously imprecise game -- which is one reason why any "cap" should be based on actual prices paid for newly acquired gas, and gas under newly renegotiated contracts, rather than on some academic estimate of what the "market clearing price" is supposed to be.

15. Your example indicates that the "natural market level" for gas is $2.65. You state that a producer might be willing to allow the price for a producing well to be lowered to this level, but that few producers would undertake the risks of new drilling for the same price. If a producer will not undertake new drilling for a given price, does that not indicate that the given price may not be the "natural market level" for that gas?

The "natural market level" for gas at the wellhead is an average price -- not necessarily a uniform price. This average price can mask above average prices needed as an incentive for new exploration and drilling (or for other reasons related to optimizing gas supply), but obviously this process requires that prices paid for some gas supplies be held below the average wellhead price level. We believe that, even in a completely undistorted free market at the wellhead, a range of prices paid would develop -- with purchasers paying below average prices for some gas (generally gas from sources with a relatively low supply payoff) and above average prices for other gas (generally gas from sources with a relatively high supply payoff).

16. Your testimony indicates your feeling that the passthrough limitation is too strict and unnecessarily punishes pipelines with large volumes of Section 104 gas. What would be your opinion of a passthrough limitation which limited pipelines to their system average cost plus inflation or the national average pipeline cost plus inflation, whichever is higher?

The suggested approach would help -- but it would not help enough to solve the special problems that rigid PGA ceilings would pose for pipelines with below average gas acquisition costs.

To illustrate this point, let us assume the existence of two hypothetical pipelines. One has an average gas acquisition cost of $2.50 per MMBtu's while the other has an average gas acquisition cost of $3.00. Let us further assume that the national average gas acquisition cost is halfway between the two pipelines (or $2.75) and that the applicable inflation adjustment, for the relevant six-month PGA period, is 5%. If system acquisition cost plus inflation is the standard, the average wellhead price paid by the low-cost pipeline could rise to $2.63; the other pipeline's average price could rise to $3.15. Thus, a gap of $.52 would exist.

If the low-cost pipeline is instead allowed to charge the national average gas acquisition cost plus inflation, its average wellhead price could rise to $2.89. This would cut in half the gap between the two pipelines -- thereby providing noticeable relief -- but a gap of $.26 would nevertheless remain. This gap is still large enough to be decisive if the two pipelines are bidding against each other for gas supplies.

Indeed, the high-cost pipeline might be in a position to "raid" the low-cost pipeline's supplies during "open season" in 1985. Among other negative impacts, such "raiding" during "open season" would divert capital toward battles over proportionate shares of a fixed supply pie -- and away from investments, in new gas development, that could lead to a bigger supply pie.

The best solution to these problems, we believe, is a decision to avoid both rigid PGA ceilings and old gas decontrol.

17. On page 11 of your testimony you suggest that we should have a better data base for the gas price "cap".

a. What do you propose?

Apart from retaining the proposed inclusion of newly renegotiated contracts, we favor: a) avoiding the use of estimated future production to the maximum extent feasible; and b) explicitly allowing FERC not to publish a "cap" price whenever it determines that the sample of contracts is not sufficient to provide an adequate data base. (In such a case, NGPA ceilings would apply.)

b. Should renegotiated contracts be used in establishing the gas price "cap"?

The data base should include a statistically significant number of new and renegotiated contracts. In these days of surplus gas and high new gas prices, there may not be enough new contracts to calculate a cap; therefore, we must include renegotiated contracts which reflect market realities just as accurately as new contracts.

Other Questions

5. Some witnesses appearing before the Committee have suggested that enactment of S. 615 would bring about chaos in the gas market. Please provide the Committee with your assessment of the prospect of that occurring.

S. 615 deregulates gas on 1/1/85 (with across-the-board market outs) and then once again on 1/1/86. This scheme has been compared to shuffling a deck by throwing all the cards up in the air at once, collecting them, and then throwing them up again. Simultaneously, the bill allows hundreds on new buyers to compete at the wellhead for gas and creates a new regulatory arm at FERC to handle hundreds of requests from buyers and sellers for mandatory gas transportation. All this will happen over 2 - 3 years. It seems to us that chaos is not a bad description of gas markets if S. 615 is enacted.

American Gas Association
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ENERGY ANALYSIS

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Survey of Industrial Fuel Switching and Alternative Fuel Capability, 1981-82 (Update)

A. Introduction

The industrial market for natural gas is important to the regulated gas industry in that 53 percent of gas sales are to industrial users (including electric utilities). Gas sales in this market are very price sensitive because many users have the capability to easily switch to alternative fuels. Fuel switching from (or to) gas to (or from) fuel oil, coal and liquefied petroleum gas (LPG) is often the result of the price sensitivity of the industrial market -- although a number of other factors also influence an industrial user's fuel choice.

Previous A.G.A. surveys on the relationship between oil and gas use in industry have focused on varying aspects of interfuel competition, such as the added impact of regulatory impediments on gas. A survey conducted a little over a year ago indicated that displacements of oil by gas in the industrial market (including electric generation) reached a net level of 456,000 barrels per day in 1980 compared to a 1978 base year. However, current indicators are that this trend is reversing, i.e., gas is now losing load to oil and oil-to-gas fuel switching is decreasing. Part 1 of this analysis updates the information on actual losses to oil in 1981 and the market and regulatory factors that accounted for this fuel switching.

Part 2 of the survey also requested data on gas-to-oil fuel switching. This section requested actual data on gas-to-oil load losses for the period from January through May 1982 and projected load losses to oil through the rest of the year.

The purpose of this analysis is to provide a general outlook on the current demand situation for natural gas relative to other fuels in the industrial market, including existing and potential fuel switching.

B. Executive Summary

- A survey of A.G.A. member gas companies around the country indicates that gross fuel switching from gas to oil in 1981 and 1982 in the industrial and electric utility markets could go as high as 659 Bcf, the equivalent of 330,000 barrels per day of oil (exclusive of any switching to gas

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from oil), by the end of 1982. Net fuel switching from gas to oil (subtracting gains made by gas from oil) totalled 515 Bcf (258,000 barrels per day) over this period.

- Actual losses to oil (including LPG) in 1981 were 295 Bcf, the equivalent of 148,000 barrels per day. Over the January through May 1982 period an additional 226 Bcf/year was lost to oil, or 113,000 barrels per day equivalent. It is projected that this will increase to 364 Bcf/year by year-end, or 182,000 barrels per day equivalent.

- Survey respondents also indicated that gross fuel switching from oil to gas (oil displacements) of 144 Bcf, or a rate of 72,000 barrels per day, occurred over the 1981-82 period. In 1981, 66,000 barrels per day of oil were displaced by gas and only an additional 6,000 barrels per day of displacements are expected in 1982.

- Thus, net fuel switching from gas to oil (subtracting total gains of 144 Bcf from total losses of 659 Bcf) over the 1981-82 period totalled 515 Bcf, or net losses to oil from gas of 258,000 barrels per day.

- The primary reasons for these losses to oil were price competition, take-or-pay contract obligations of industrial and electric utility users to purchase oil, and inflexible pricing regulations on natural gas, such as incremental pricing.

  - The impact of gas price increases under NGPA wellhead pricing provisions was the major factor, particularly with regard to the projected losses to oil in 1982.

  - The price differential between gas and oil, causing the switching to oil, ranged from 5-15% lower for residual oil versus gas and as much as 18-27% lower for LPG versus gas.

  - Take-or-pay contractual obligations of energy consumers to purchase oil also accounted for a large share of the losses to oil, especially in the electric generation sector in 1981.

- Between 1978 and 1980 the gas utility industry displaced oil use in the industrial and electric generation markets at the net rate of 456,000 barrels per day. Given the updated data for 1981, net oil displacements since 1978 have declined to an average of 374,000 barrels per day, and have declined again in 1982 to a net rate of approximately 198,000 barrels per day.

- According to survey respondents, approximately 52% of 1981 gas sales in the industrial sector were to dual-fuel capable users, whereas over 89% of electric generation sales were to dual-fuel capable users.
  - In the industrial sector, residual oil was the primary alternative fuel for 49% of the dual-fuel capable use followed by distillate oil, 36%, and LPG, 15%.
  - In the electric generation sector, residual oil was the primary alternative fuel for nearly all of the dual-fuel capable users.

C. Background and Methodology

In the fifth version in this series of fuel displacement analyses, survey questionnaires (see Appendix A) were mailed out to a total of 59 member companies. Thirty seven companies responded, representing all regions of the country and both large and small industrial/electric generation loads. These 37 companies had combined sales to the industrial and electric generation markets in 1981 of 3,431 billion cubic feet, or approximately 42% of estimated total 1981 gas utility industry sales in these two markets of 8,215 Bcf. The responses were than handled as follows:

- Data reported in the questionnaires were verified by cross-checking with 1981 total industrial gas sales and offset estimates reported by each company in the previous oil offset survey published in 1981.[1] The companies responding were nearly the same in both years.
- Follow-up telephone conversations were made in many cases to ensure accuracy and consistency of reported data.
- Since the responses represented 42% of total 1981 gas utility industrial gas sales, reported figures were divided by 0.42 to extrapolate the results to an estimate for the entire gas utility industry. The responses were then converted to barrels per day of oil equivalent using a simple conversion of one million barrels per day oil equivalent per two Tcf annually.

Part 1 of the questionnaire contained three sections covering current and potential gas use among dual-fuel capable industrial and electric utility customers within a respondent's service area. The alternative fuel categories were distillate oil, residual oil and LPG in the industrial market and distillate or residual oil in the electric generation market.

Section A requested information updating actual oil displacement (and loss) data for 1981. Data were also requested on the volume of dual-fuel capable use that switched permanently to coal in 1981.

Section B requested data on the alternative fuel capability of the dual-fuel capable users. This included estimated 1981 gas sales broken out by alternative fuel capability, e.g., gas use in boilers for which distillate, residual oil or LPG was the primary alternative. Data on estimated 1981 oil use among dual-fuel capable users and by oil-only capable users were also requested.

Section C of Part 1 then requested detailed information on the potential for gas to displace oil in the respondent's industrial market. For those customers identified in Section B as having dual-fuel capable facilities that burned oil in 1981, the respondent was asked to identify the primary reason ("principal motivating factor") customers continued to use oil rather than gas. These motivating factors were divided into two categories: market or regulatory factors. Market factors included relative fuel price, gas supply availability (e.g., seasonal interruption), and other non-regulatory factors, such as contractual commitments for fuel oil. Regulatory factors included incremental pricing, the Fuel Use Act, concern over deregulation effects after 1985, and other non-market factors.

Part 2 of the survey questionnaire focused on those instances of gas-to-oil fuel switching that occurred as a direct result of price increases under the NGPA. The survey requested actual data for the period from January through May 1982 on the volume of load lost to oil, the type of oil, the reported oil price (if available) and the competing gas rate. Projected additional load losses, by volume and type of fuel, were then requested for the remainder of 1982. A follow-up telephone check was made for those companies that either reported displacements of oil in 1981 or losses to oil in 1982 to determine the projected volume of displacements of oil by gas in 1982.

D. Discussion of Results

Survey results indicate that in the gas utility industry gross losses (exclusive of any oil to gas switching) of gas load to oil (including LPG) in the industrial and electric generation markets in 1981 and 1982 could be as high as 659 Bcf. This is based on an actual loss to oil of 295 Bcf in 1981 and a projected loss to oil in 1982 of 364 Bcf. Net fuel switching from gas to oil (losses of 659 Bcf minus gains of 144 Bcf) totalled 515 Bcf over the 1981-82 period.

Total estimated load losses to oil in 1981 averaged 148,000 barrels per day. In contrast, displacements of oil by natural gas in the industrial/electric generation markets averaged only 66,000 barrels per day in 1981 for a net loss to oil of 82,000 barrels per day.

In 1982, estimated load losses to oil increased to an average of 182,000 barrels per day. However, displacements of oil by natural gas declined significantly to approximately 6,000 barrels per day for a net loss to oil of 176,000 barrels per day.

An A.G.A. survey of member companies conducted a little over a year ago concluded that net industrial/electric generation oil displacements, which had reached 435,000 barrels per day in 1979, rose only slightly to 456,000 barrels per day in 1980 (compared to a 1978 base year). Current survey data, however, indicate that the net rate of oil displacements through 1981 has declined to 374,000 barrels per day. In addition, respondents' projected estimates for 1982 of 182,000 barrels per day of losses to oil from gas, indicate that net oil displacements by gas since 1978 have fallen to an average of 198,000 barrels per day in 1982.

The 148,000 barrels per day of load loss to oil in 1981 occurred almost completely in the electric generation sector. The type of oil that displaced gas was residual oil in the electric generation sector, while the losses in the industrial sector were divided equally between residual and distillate oil, and to a lesser extent LPG. In terms of gas displacing oil in 1981, over 90% of the displacements occurred in the industrial sector. Within the industrial sector, 64% of the displacements by gas were of residual oil and 36% were of distillate oil, and only a negligible amount of the displacements were of LPG.

Approximately 52% of 1981 gas sales in the industrial sector reported in the survey were to dual-fuel capable users, whereas over 89% of electric generation sales were to dual-fuel capable users. Table 1 shows the relative share of dual-fuel use compared to total gas use on a regional basis (see Appendix B for the composition of the U.S. Census Divisions). In the industrial sector, residual oil was the primary alternative fuel for 49% of the dual-fuel capable use followed by distillate oil, 36%, and LPG, 15%. In the electric generation sector, residual oil was the primary alternative fuel for nearly all (94%) of the dual-fuel capable use.

The primary alternative fuels by region are shown in Table 2. In many regions the primary alternative fuel in the industrial sector is divided between both distillate and residual oil, although LPG is a significant alternative fuel in a few regions, e.g., in the South Atlantic. Residual oil is the primary alternative fuel in most regions in the electric generation sector; however, distillate oil is a substantial alternative in some of the central regions.

Survey respondents identified a minimum of 336,000 barrels per day of oil use in 1981 among dual-fuel capable users. A major portion of this 336,000 barrels per day of dual-fuel capable load, 276,000 barrels per day or 82%, was oil consumed for electric generation. This oil consumption was more than 95% residual oil. Identified oil use among dual-fuel capable users in the industrial sector averaged 60,000 barrels per day. Nearly 53% of this identified oil consumption was distillate oil, 42% residual oil and the remaining 5% was LPG consumption. In dual-fuel capable facilities which used oil or gas, the equivalent of 26,000 barrels per day of oil, or 52 Bcf, of dual-fuel gas/oil boilers switched to coal in 1981.

Table 1

Percentage of 1981 Gas Use in Dual-Fuel Facilities vs.
Total Gas Use, By Region and Total U.S.
(Based on 37 survey respondents)

Region	Industrial	Electric Generation	Combined
New England	52%	100%	60%
Middle Atlantic	41	48	43
East North Central	32	38	32
West North Central	73	83	74
South Atlantic	83	100	84
East South Central	86	*	86
West South Central	23	100	49
Mountain	100	*	100
Pacific	79	99	91
United States	52	89	62

Table 2

Percentage of 1981 Gas Use in Dual-Fuel Capable Facilities
By Alternative Fuel, By Region and Total U.S.
(Based on 37 survey respondents)

Region	Industrial			Electric Generation	
	Distillate	LPG	Residual Oil	Distillate	Residual
New England	8%	2%	90%	100%	0
Middle Atlantic	41	8	51	22	78
East North Central	29	2	69	50	50
West North Central	40	16	44	42	58
South Atlantic	25	39	36	58	42
East South Central	46	20	34	*	*
West South Central	46	1	53	0	100
Mountain	85	0	15	*	*
Pacific	42	15	43	3	97
United States	36	15	49	6	94

* No reported electric generation sales by companies surveyed.

Viewing the 336,000 barrels per day of oil use among dual-fuel capable customers as potential oil displacements, the survey indicates that market factors played a much larger role in 1981 than regulatory factors in explaining why these potential displacements did not occur. Among the market factors inhibiting potential oil displacements, large-volume contractual commitments to purchase fuel oil was listed as a principal factor, 63% or 213,000 barrels per day. Interruptions of gas load to meet seasonal heating requirements was the second most important factor, accounting for 119,000 barrels per day or 35% of potential oil displacements. Incremental pricing was the one regulatory factor that respondents directly identified as blocking potential oil displacements.

Part 2 of the survey focused on load losses to oil in 1982, specifically those instances of gas-to-oil fuel switching that occurred as a direct result of price increases under the NGPA. Preliminary results for 1982 indicate that the substantial fuel switching to oil has continued in 1982, primarily in the industrial sector. Actual losses to oil from January through May 1982 averaged 113,000 barrels per day. It is projected that this will increase to 182,000 barrels per day by year-end 1982. Residual oil is the predominant fuel that is displacing gas, although there were several indentified cases of gas being displaced by LPG. The price differential causing the switching to oil ranged from 5-15% lower for residual oil versus gas and as much as 18-27% lower for LPG versus gas.

Tables 3 and 4 list the relevant data from the survey responses for actual losses to oil from January through May 1982 and projected additional losses to oil for the remainder of the year. It can be seen in Table 3 that in each instance of load loss from gas to oil, the price of the alternative fuel (distillate, residual oil, or LPG) was consistently lower than the prevailing industrial gas rate regardless of geographical location.

E. Implications of Results

The gas utility industry has lost substantial volumes of load to oil in 1981 and 1982 in the industrial market, offsetting only a fraction of these losses through displacements of oil by gas. Moreover, while in 1981 gas utility industrial sales increased compared to 1980,[2] it appears that industrial gas sales in 1982 will be down from 1981 under the combined effects of the economic recession and fuel switching to oil. Preliminary sales statistics show that gas utility sales in the industrial market were 24% lower in May 1982 compared to May 1981,[3] 23% lower for June 1982 versus June 1981 and 13% lower for the six months from January through June 1982 compared to the first six months of 1981.[4]

Given the results of this analysis that identifies the capability of many industrial users to readily switch between gas and oil and gas load losses to oil that have already occurred, it appears that gas will face stiff competition in the industrial sector as wellhead prices are decontrolled. At present, gas utilities --

Table 3

Actual Gas-to-Oil Fuel Switching
(January-May, 1982)

Actual losses (Bcf/year)	Month	Fuel	Price ($/MMBtu)	Gas Rate ($/MMBtu)
0.02	March	#2	(to keep access to supplier)	
0.06	April	LPG	3.58	4.35
3.10	Jan.	#6	3.73	3.91
0.03	May	LPG	5.90	6.25
6.00	Jan.-Apr.	#6	-	-
0.13	April	LPG	4.18 4.46	4.69 6.10
18.10	May	#6	4.80	5.21
57.00	May	#6	4.00-5.00	5.26
0.50	Jan.-Apr.	#6	3.03	3.56
0.50	April	#6	4.60	5.14
0.30	Feb.-Apr.	#6	N/A	3.54
0.10	March-Apr.	#6	(differential of $0.37/MMBtu)	
3.00	Jan.-Apr.	#6	($4.82 Jan. 4.47 Apr.)	4.48 4.70
0.30	Jan.-Apr.	LPG & #6	3.25 4.00-4.25	4.47
5.20	Jan.-Apr.	#6	N/A	4.50
0.65	Jan.	#6	3.68	3.98
94.65				

Table 4

Projected Load Loss to Oil
(June-December, 1982)

Additional 1982 Projected Loss (Bcf/year)	Fuel	Comment
1.30	#6	A gas cost adjustment scheduled for August 31 would raise the gas price above the current residual oil price. This potential loss could actually be as high as 6.9 Bcf if industrial activity was not at such depressed levels.
0.25	#6, coal, LPG	60% of the projected loss is to coal.
6.30	#6	Initial losses projected for late Fall.
0.05	#6 and LPG	N/A
2.02	#6	Primarily interruptible. Although interruptible tariff contains a provision prohibiting gas from exceeding oil price, minimum gas price must be above commodity cost.
0.01	LPG	Customer purchased LPG on spot market; may displace gas or may be used when interrupted.
3.00	#6	Delayed effect of rate increase and possible effect on summer agriculture load.
4.00	#6	Loss commences October 1.
4.40	#6	Three plants to switch. The first expected in mid-July.
6.30	#6	Anticipated effect of a September gas cost increase.
24.20	#6	Includes large commercial customers.
0.70	#6	N/A
5.60	#6	Losses to occur in more than one state.
0.85	#6	Predicated on continuation of residual oil glut.
58.95		

which are regulated by state public utility commissions -- do not have the pricing flexibility that sellers of alternative fuels enjoy. If gas utilities are to optimize their sales in this market, they should be on an equal footing with their competitors in terms of pricing flexibility. Where gas utilities can not price their product to meet the competition, load loss will occur.

Footnotes

1. Survey of Actual and Potential Oil Offsets Enabled by Increased Gas Use in 1980, A.G.A., Arlington, VA., Energy Analysis 1981-6, April 24, 1981.

2. Quarterly Report of Gas Industry Operations, A.G.A., Arlington, VA., Fourth Quarter 1981.

3. Monthly Gas Utility Statistical Report, A.G.A., Arlington, VA., May 1982.

4. Monthly Gas Utility Statistical Report, A.G.A., Arlington, VA., June 1982.

Company ____________________

Name ____________________

Phone # ____________________

Appendix A

Part 1

Survey of Industrial Oil Displacements and Alternative Fuel Capability

The questionnaire covers both current and potential gas use among industrial and power plant customers in your service area. The focus is on dual-fuel capable customers, i.e., those who are capable of burning gas and other fuels. Oil displacements are defined as existing oil use (distillate, residual or LPG) in 1980 that has been displaced by gas. Gas displacements are actual or projected oil use in gas-capable facilities. Please estimate where precise data are not available. Please convert all responses to MMcf equivalent per year.

Note: This survey is an update of a survey conducted last year.

	Industrial	Power Plant	Total
Total 1981 Gas Sales (MMcf)			

A. Oil Displacements Update

	Dist.	LPG	Resid.	Dist.	Resid.	Total
1. Actual oil displacements by gas in 1981 vs. 1980						
2. Actual losses, if any, to oil in 1981 vs. 1980						
3. Volume of dual-fuel capable use that switched to coal in 1981 (oil or gas)						

B. Alternative Fuel Capability

	Dist.	LPG	Resid.	Dist.	Resid.	Total
1. Estimated 1981 gas sales to dual-fuel (oil/gas) capable users						
2. Estimated 1981 oil use among all dual-fuel (oil/gas) capable users						
3. Volume of oil use in your service area by oil-only capable users						

C. Potential Oil Displacements

Please provide volumes of lost gas sales represented in Section B.2. Include volume only once, under the principal motivating factor.

	Dist.	LPG	Resid.	Dist.	Resid.	Total
1. Market factors:						
- Relative fuel price						
- Gas supply availability						
- Other non-regulatory factors (specify)						
2. Regulatory factors:						
- Incremental pricing						
- Fuel Use Act						
- Concern over deregulation effects after 1985						
- Other non-market factors (specify)						
Total						

D. Comments ____

____

____

Appendix B

U.S. Census Divisions and States

NEW ENGLAND (NE)

- Connecticut
- Maine
- Massachusetts
- New Hampshire
- Rhode Island
- Vermont

MIDDLE ATLANTIC (MA)

- New Jersey
- New York
- Pennsylvania

EAST NORTH CENTRAL (ENC)

- Illinois
- Indiana
- Michigan
- Ohio
- Wisconsin

WEST NORTH CENTRAL (WNC)

- Iowa
- Kansas
- Minnesota
- Missouri
- Nebraska
- North Dakota
- South Dakota

SOUTH ATLANTIC (SA)

- Delaware
- District of Columbia
- Florida
- Georgia
- Maryland
- North Carolina
- South Carolina
- Virginia
- West Virginia

EAST SOUTH CENTRAL (ESC)

- Alabama
- Kentucky
- Mississippi
- Tennessee

WEST SOUTH CENTRAL (WSC)

- Arkansas
- Louisiana
- Oklahoma
- Texas

MOUNTAIN (M)

- Arizona
- Colorado
- Idaho
- Montana
- Nevada
- New Mexico
- Utah
- Wyoming

PACIFIC (P)

- Alaska
- California
- Hawaii
- Oregon
- Washington

Official Committee File MAR 2 4 198 Howard

AGD

ASSOCIATED GAS DISTRIBUTORS Suite 1200, 1100 Connecticut Ave., N.W., Washington, D.C. [illegible] [illegible]

SUPPLIERS OF GAS TO
CONSUMERS ON THE
EASTERN SEABOARD

Baltimore Gas and Electric Co.
Bay State Gas Co.
The Berkshire Gas Co.
Boston Gas Co.
The Brooklyn Union Gas Co.
Cape Cod Gas Co.
Central Hudson Gas and Electric Corp.
Chesapeake Utilities Corp.
City of Holyoke, Mass., Gas and Electric Dept.
City of Westfield Gas and Electric Light Dept.
Commonwealth Gas Co.
Concord Natural Gas Corp.
The Connecticut Gas Co.
Consolidated Edison Company of New York, Inc.
Delmarva Power and Light Co.
Elizabethtown Gas Co.
Fitchburg Gas and Electric Light Co.
Gas Service, Inc.
Haverhill Gas Co.
Long Island Lighting Co.
Lowell Gas Co.
Lynchburg Gas Co.
Manchester Gas Co.
New Jersey Natural Gas Co.
New York State Electric and Gas Corp.
North Carolina Natural Gas Corp.
Northeast Georgia Municipal Gas Utilities
Northern Utilities, Inc.
Pennsylvania Gas and Water Co.
Pennsylvania & Southern Gas Co.
Pequot Gas Co.
Philadelphia Electric Co.
Philadelphia Gas Works
Providence Gas Co.
Public Service Company of North Carolina, Inc.
Public Service Electric and Gas Co.
South County Gas Co.
South Jersey Gas Co.
The Southern Connecticut Gas Co.
UGI Corporation
Valley Gas Co.
Washington Gas Light Co.

March 21, 1983

The Honorable James A. McClure
Chairman
Energy and Natural Resources
Committee
Room SD 368
Dirksen Senate Office Building
1st and C Streets, N.E.
Washington, D.C. 20510

SENATE COMMITTEE ON
ENERGY AND NATURAL RESOURCES
RECEIVED
MAR 22 1983
WASHINGTON, D.C. 20510

Dear Chairman McClure:

On February 11, 1983 Charles E. Zeigler, Chairman, President and Chief Executive Officer of the Public Service Company of North Carolina and Chairman of the Associated Gas Distributors, testified before your Committee on Natural Gas pricing policies. Thereafter, AGD received a list of some twenty-nine questions with respect to that hearing. This letter responds as fully as possible given the March 21, 1983 response deadline and the economic data presently available to AGD. As indicated below, AGD will provide further responses with respect to a number of the questions posed as soon as the necessary data becomes available.

Questions 1 through 4. These questions all concern estimates as to the price and supply implications of S. 615. AGD's Analytical Capability Task Force is presently undertaking a thorough study of these matters in relation to other pending legislation and will provide the final results to the Committee when they are available.

Question 5. How soon would you expect the PGA passthrough limitation in S. 615 would begin to be a problem for the pipelines?

Response: Given the "allowed rate" starting level in S. 615 and the fact that any increment above such rate could only be collected by a pipeline after a just, reasonable and prudence proceeding is completed by FERC, it is most likely that those

Part 2

Survey of Reduced Industrial Gas Use Due to Switching to Oil as a Direct Result of Price Increases under NGPA

Data are requested on those instances of gas-to-oil fuel switching that occurred as a direct result of price increases under the NGPA from January 1982 through the present and projected load loss through the remainder of 1982. Data are requested on the state in which the plant is located, the oil price which the customer actually paid when switching (if available), and the gas rate that was charged. Please convert the load loss to an annual basis.

Actual Load Loss

State	Load Loss (Bcf/year)	Month Switch Occurred	Type of Fuel* and Reported Actual Price ($/MMBtu)	Gas Rate ($/MMBtu)

Projected Load Loss

State	Load Loss (Bcf/year)	Type of Fuel*

Comments ____

____

____

* Residual oil, Distillate, or LPG.

pipelines with very low or negative PGA's would begin to experience significant problems with the S. 615 passthrough mechanism no later than three to six months after enactment.

Question 6. If the passthrough limitation in S. 615 were adopted, how would your members treat payments they are contractually obligated to pay, but which they could not recover?

Response: Of course, the passthrough limitation in S. 615 does not directly apply to AGD member companies, however, the effects and implications of it would have a direct effect on local distribution companies. Any passthrough of gas cost which gas distributors are obligated to pay and cannot recover because of actions taken by their State regulatory authorities would likely be deducted from already minimal earnings of gas utilities. The only remaining recourse would be to seek to renegotiate contractual commitments with the pipeline suppliers and, failing that, to take appropriate legal action before the Federal Energy Regulatory Commission and the courts.

Question 7. If old gas deregulation stays in the final bill, would you support it?

Response: No.

Question 8. Please provide the Committee with specific statutory language for any amendments you would like to see adopted if the Committee were to use S. 615 as a mark-up vehicle for natural gas legislation.

Response: The only value to S. 615 is that it finally initiates congressional action on very real problems present in the industry which will become even more serious if not addressed before January 1, 1985 -- that is, the so-called "contract problems" and the interstate pipeline guaranteed passthrough provision of NGPA Title VI. Old gas decontrol and a modest, yet unworkable and fundamentally ineffective and temporary at that, restriction on interstate pipeline passthrough of purchased gas cost, are so integral to the fabric of S. 615 that it would be extremely difficult if not impossible to "amend" the bill to achieve an acceptable compromise. AGD fully supports S. 689 and would recommend that the statutory language of S. 689 be used by the Committee as the mark-up vehicle.

Question 9. If the amendments you support are not adopted, and if you had to go up or down on S. 615 would you support it or would you support a continuation of the existing law?

Response: The answer to this question requires a choice between two unacceptable alternatives. If, however, a response had to be made, AGD would probably opt to continue under existing law and further intensify its efforts before the Federal Energy Regulatory Commission and the courts to protect the interests of gas distribution companies as well as could be done. The obvious problem with this "muddle-through" strategy, aside from the fact that it may not work, is that the cost of failure would be extremely serious not only for gas utilities but for their customers, stockholders and financial institutions with a significant stake in the utility industry.

Question 10. Do you feel the authority to exercise a market-out should be extended to contracts between pipelines?

Response: This would not be necessary. Though there are a number of areas over which the Federal Energy Regulatory Commission does not believe it has jurisdiction, there can be no question that FERC jurisdiction applies to contracts between interstate pipelines and that any problems associated with those contracts can be resolved today by FERC.

*/

Question 12. One of the basic objectives of the Administration bill is to create a "free market" for natural gas. How would you feel about creating a free market for pipelines and local distribution companies by deregulating them completely?

Response: The deregulation of local distribution companies as to their rates only is an idea which, at least theoretically, merits consideration. Distribution companies do compete with alternate fuel for their retail markets, that is, electricity, fuel oils, coal, wood, and solar. Indeed, a number of States have already established, or are considering establishing, industrial gas rates that "float" with competitive fuels. As a practical

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*/ No question 11 was presented.

matter, however, the "deregulation" of distributors is not a decision which should be made lightly and seems quite unlikely in any event given the social and political institutions with a vested interest in continuing the regulation of gas utilities. As to interstate pipelines, even the theoretical case for decontrol is less clear. Pipelines are much closer to being natural monopolies than are gas utilities and, accordingly, the public interest in their regulation is higher. Again, however, this does not seem to be a viable "political" option.

What if that deregulation were to occur as of January 1, 1986, so that there would be a transition, coupled with the option to abrogate your contracts, and then deregulation?

Response: The magnitude of this type of a change in public policy would be, of course, a dramatic shift from the present state of affairs. Such a shift in an industry known for stability should only be undertaken, if at all, after extended discussion, debate and analysis of consequences. Further, while the idea of a perfect "free market" is generally appealing, it detracts from the real crisis at hand with respect to existing levels of wellhead prices and the guaranteed passthrough of purchase gas cost by interstate pipelines.

Question 13. Do you support the equal access provisions advocated by the witness from the Independent Petroleum Association of Mountain States, or by the witness from the Coalition for Equal Access?

Response: To the extent that these provisions create one set of regulatory groundrules for transportation of gas in interstate commerce for intrastate pipelines and a different set for interstate pipelines, AGD opposes them.

Question 14. Do you agree that, from your vantage point, decontrol of all gas is the chief issue before us in S. 615?

Response: The decontrol of old gas is certainly an issue before the Committee in S. 615. It is, in terms of immediate price and supply impact, probably of chief concern. However, in terms of long term responsiveness of wellhead gas prices to retail market conditions, the Administration's guaranteed passthrough provision with respect to interstate pipeline purchased gas costs is of equal concern. The transmission of demand signals from the retail markets to the wellhead simply cannot be efficiently accomplished when one of the parties in the marketing chain has a federal guarantee that it may pass its cost on to the next party in that marketing chain.

Question 15. On page 17 of his prepared statement, Mr. McGrath foresees the Administration bill leading to a dual market, the intrastate and the interstate market. Do all panelists agree? How, and how soon, would this happen?

Response: To the extent that S. 615 disadvantages interstate pipelines in relation to intrastate pipelines, which it does, a dual market would in fact be created upon the date of enactment. The risks which this would entail would likely be substantial, though unquantifiable today. The issue is, as a matter of sound public policy, should such a risk be taken. AGD would answer no.

Question 16. Do you believe that parties to direct sales contracts, as well as parties for first sale or sale for resale contracts, should be able to take advantage of the Administration's market-out provision? What about minimal bill contracts between pipelines, and contracts between pipelines and local distribution companies?

Response: The Administration's bill is a substantial overhaul of the regulatory and institutional structures present in the gas industry from wellhead to burnertip. This is not necessary. The record evidence before the Committee points to several clear problems with the present structure of regulation. That record does not, at this time, provide a basis for acting through legislation on direct sales contracts. AGD does not have a position on whether this would be useful or necessary. As to minimum bills, the FERC retains complete jurisdiction, as described in response to question 10, over minimum bills between interstate pipeline companies. That regulatory authority should be sufficient to address the problems present. As to minimum bill provisions between pipelines and local distribution companies, AGD is concerned that there is not a sufficient record before the Committee or FERC to act with any degree of confidence in this area. Moreover, a flat legislative prohibition on minimum bills between all pipelines and all distributors could have a significant adverse impact on the ability of new pipeline systems to obtain financial commitments necessary for their construction. Accordingly, the subject does not now appear sufficiently defined to permit effective and intelligent congressional action with respect to it.

Question 17. Several panel members advocate repeal of fuel use restrictions in the Power Plant and Industrial Fuel Use Act.

Response: AGD takes no position with respect to the Fuel Use Act.

Question 18. Section 405 of S. 615 makes the contract carrier authorization applicable only in a limited set of circumstances. In short, the pipeline previously carrying the gas would have to carry it for a new purchaser. Would you support expanding this requirement so that any pipeline, interstate or intrastate, could be required to carry gas for any other purchaser?

Response: No, the suggested change is too broad. There are a host of equitable considerations present on any pipeline system concerning the preferential needs and requirements of existing customers of interstate pipelines. Where transportation service has been a problem, a reasonable increase in the financial incentive available to interstate pipelines to undertake such service would likely be sufficient to resolve all but the most extraordinary situations. AGD supports such an incentive for interstate pipeline transportation service.

Question 19. In simplest terms, the administration's proposal attempts to keep gas prices flat between now and 1986 while old gas contracts are renegotiated. This would be accomplished by reducing new gas prices. How can anyone explain to the public that this is a good idea when they know that the new gas sources are where we get our new production?

Response: The same way that anyone can explain that catsup is a vegetable.

Question 20. What assurances are there that after January 1, 1985 gas producers won't just unilaterally abandon all gas contracts and withhold supplies from the market until their price demands are met?

Response: Given the natural desire of gas producers to profit from their business, a wholesale, unilateral abandonment of old gas contracts and withholding of supplies is unlikely. However, old gas which would otherwise be dedicated to supply the interstate markets could be sold to the intrastate markets or, simply other interstate markets. The point here is that interstate gas supply security is left to whatever the market provides as opposed to the section 7 abandonment provisions of the Natural Gas Act. While this may "work out" satisfactorily, would it not be wiser public policy to avoid the risk of failure, especially given the fact that only old gas would be affected. That is, the theoretical, economic inefficiency which would arise from retention of the abandonment provision of the Natural Gas Act is not so compelling as to risk the gas supply security of the interstate markets.

Question 21. Could you discuss the gamesmanship or the psychology that would likely occur under S. 615 if a producer comes to the pipeline with which he has a contract on the day after enactment of S. 615 and says, "let's agree to an insignificant amendment to our contract as that will constitute a renegotiation and deregulate us from price controls and non-price regulation, although the significant aspects of our contract will remain in effect." How is a pipeline likely to react to that offer?

Response: A pipeline's reaction will, of course, vary from pipeline to pipeline depending upon its gas supply needs, system wide market conditions and its S. 615 "allowed rate" for pass-through purposes. Hopefully, a pipeline would not react favorably to such a request. Again, however, the question becomes whether sound public policy should risk the development of such behavior in light of the historic relationships between pipelines and producers and the recent experiences under NGPA with interstate pipeline gas contracting practices.

Question 22. See response to questions 1-4.

Question 23. See response to question 15.

Questions from Various Republican Members of Committee

Question 1. See question 8 above.

The Honorable James A. McClure
March 21, 1983
Page Eight

Questions 2-4. See response to questions 1-4 above.

Questions 5. Some witnesses appearing before the Committee have suggested that enactment of S. 615 would bring about chaos in the gas market. Please provide the Committee with your assessment of the prospect of that occurring.

Response: There can be little, if any doubt that S. 615 will in fact inject a jolt of significant uncertainty into the gas marketing system. Under S. 615, this would principally occur in 1985 and thereafter when the interstate pipeline accountability for purchased gas costs reverts back to the fraud provision of NGPA. Whether this dramatic uncertainty will in fact bring chaos is of course a matter of speculation. The potential for chaos is clearly present and, assuming that a reasonable public policy objective is to minimize chaos, S. 615 should be rejected given its high probability of not meeting that objective.

Question for Mr. Zeigler

Please provide the Committee with a breakdown for each of your member companies of distribution costs since the NGPA was enacted and projections through 1985. Please show the rate of increase for each major cost component in distribution cost for those years for each of these companies.

Response: AGD will try to provide this information to the Committee soon.

AGD appreciates the opportunity to respond to the Committee's questions, and will provide further information as indicated above when available.

Sincerely,

Dana Contratto

Dana Contratto
Counsel for Associated
Gas Distributors

cc: All Members of the Senate
Committee on Energy and Natural Resources
David Doane, Esquire
Elizabeth Moler, Esquire

AGD

ASSOCIATED GAS DISTRIBUTORS Suite 1200, 1100 Connecticut Ave., N.W., Washington, D.C. 20036 202-466-6329

SUPPLIERS OF GAS TO
CONSUMERS ON THE
EASTERN SEABOARD

Baltimore Gas and Electric Co.
Bay State Gas Co.
The Berkshire Gas Co.
Boston Gas Co.
The Brooklyn Union Gas Co.
Cape Cod Gas Co.
Central Hudson Gas and
Electric Corp.
Chesapeake Utilities Corp.
City of Holyoke, Mass., Gas
and Electric Dept.
City of Westfield Gas and
Electric Light Dept.
Commonwealth Gas Co.
Concord Natural Gas Corp.
The Connecticut Gas Co.
Consolidated Edison Company
of New York, Inc.
Delmarva Power and Light Co.
Elizabethtown Gas Co.
Fitchburg Gas and Electric
Light Co.
Gas Service, Inc.
Haverhill Gas Co.
Long Island Lighting Co.
Lowell Gas Co.
Lynchburg Gas Co.
Manchester Gas Co.
New Jersey Natural Gas Co.
New York State Electric
and Gas Corp.
North Carolina Natural
Gas Corp.
Northeast Georgia
Municipal Gas Utilities
Northern Utilities, Inc.
Pennsylvania Gas and Water Co.
Pequot Gas Co.
Philadelphia Electric Co.
Philadelphia Gas Works
Providence Gas Co.
Public Service Company of
North Carolina, Inc.
Public Service Electric and
Gas Co.
South County Gas Co.
South Jersey Gas Co.
The Southern Connecticut Gas Co.
UGI Corporation
Valley Gas Co.
Washington Gas Light Co.

March 28, 1983

The Honorable James A. McClure
Chairman
Energy and Natural Resources Committee
Room SD 368
Dirksen Senate Office Building
1st and C Streets, N.E.
Washington, D.C. 20510

Dear Chairman McClure:

Following Charles E. Zeigler's testimony before your Committee on February 11, 1983, a list of questions was sent to Associated Gas Distributors to be answered by March 21, 1983. As of that date, AGD did not have sufficient information to respond to the question to Mr. Zeigler, which was:

> Please provide the Committee with a breakdown for each of your member companies of distribution costs since the NGPA was enacted, and projections through 1985. Please show the rate of increase for each major cost component in distribution costs for those years for each of these companies.

In response to this question, AGD now provides the following information.

DISTRIBUTION COSTS FOR AGD COMPANIES*/
(in dollars per dekatherm)

	1982	1981	1980	1979	1978
GAS COST	4.02	3.31	2.71	2.04	1.72
OPERATION & MAINTENANCE	1.18	1.09	0.89	0.86	0.84
DEPRECIATION & AMORTIZATION	0.16	0.15	0.15	0.14	0.15
TAXES	0.65	0.58	0.56	0.51	0.48
GROSS INCOME	0.47	0.36	0.40	0.37	0.37
AVERAGE COST OF GAS TO CONSUMER	6.48	5.49	4.71	3.92	3.56

Projected distribution costs for AGD companies through 1985 are not available.

RATE OF INCREASE
FOR MAJOR COST COMPONENTS
FOR FOUR YEAR PERIOD

Cost Component	Average Increase Per Year
Gas Cost	23.6%/year
Operation and Maintenance	8.9%/year
Depreciation and Amortization	1.6%/year
Taxes	7.8%/year
Gross Income	4.8%/year
Overall Non-gas Increase	7.2%/year
Overall Increase	16.0%/year

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*/ This table is based on responses from the following AGD member companies: Public Service Electric & Gas Co., The Brooklyn Union Gas Co., Boston Gas Co., Elizabethtown Gas Co., Washington Gas Light Co. and Providence Gas Co.

Thank you for the opportunity to respond to the Committee's questions. AGD will provide answers to the other questions posed when further information is available.

Sincerely,

Dana Contratto

Dana C. Contratto
Counsel for
Associated Gas Distributors

cc: All members of the Senate
Committee on Energy and
Natural Resources
David Doane, Esquire
Elizabeth Moler, Esquire

AGD

ASSOCIATED GAS DISTRIBUTORS Suite 1200, 1100 Connecticut Ave., N.W., Washington, D.C. 20036 202-466-6329

SUPPLIERS OF GAS TO
CONSUMERS ON THE
EASTERN SEABOARD

Baltimore Gas and Electric Co.
Bay State Gas Co.
The Berkshire Gas Co.
Boston Gas Co.
The Brooklyn Union Gas Co.
Central Hudson Gas and
Electric Corp.
Chesapeake Utilities Corp.
City of Holyoke, Mass., Gas
and Electric Dept.
City of Westfield Gas and
Electric Light Dept.
Colonial Gas Co.
Commonwealth Gas Co.
Concord Natural Gas Corp.
The Connecticut Gas Co.
Consolidated Edison Company
of New York, Inc.
Delmarva Power and Light Co.
Elizabethtown Gas Co.
Essex County Gas Co.
Fitchburg Gas and Electric
Light Co.
Gas Service, Inc.
Long Island Lighting Co.
Lynchburg Gas Co.
Manchester Gas Co.
New Jersey Natural Gas Co.
New York State Electric
and Gas Corp.
North Carolina Natural
Gas Corp.
Northeast Georgia
Municipal Gas Utilities
Northern Utilities, Inc.
Pennsylvania Gas and Water Co.
Pennsylvania & Southern Gas Co.
Pequot Gas Co.
Philadelphia Electric Co.
Philadelphia Gas Works
Providence Gas Co.
Public Service Company of
North Carolina, Inc.
Public Service Electric and
Gas Co.
South County Gas Co.
South Jersey Gas Co.
The Southern Connecticut Gas Co.
UGI Corporation
Valley Gas Co.
Washington Gas Light Co.

May 31, 1983

The Honorable James A. McClure
Chairman
Energy and Natural Resources Committee
Room SD 368
Dirksen Senate Office Building
1st & C Streets, N.E.
Washington, DC 20510

Dear Chairman McClure:

Subsequent to Mr. Zeigler's testimony on March 11, 1983, before your Committee, a number of questions were posed to AGD by the Committee. Responses to most of these questions were provided on March 21 and 28. AGD further advised that responses to the remaining questions, which concerned estimates of the price and supply implications of S. 615 and other proposals, would be forthcoming. National Economic Research Associates (NERA), working in conjunction with AGD's Analytical Capability Task Force, has now completed a comprehensive, economic analysis of the Administration's and other natural gas proposals. Two copies of the NERA report are enclosed for your information and the Committee's hearing record.

Among other things, the report concludes that the retention of "old" gas controls "is not incompatible with an efficient and fair transition to market-determined wellhead pricing. With continued price ceilings on old gas, (a) more natural gas is made available to consumers at (b) lower average acquisition prices, while (c) at the same time, higher prices are paid for substantial volumes of decontrolled natural gas; thus a positive inducement for gas supply expansion and development in the field will be enhanced." The report further concludes that the "Addabbo-Heinz bill" (H.R. 1752/S. 689) "is likely the best way to proceed in helping natural gas markets make the transition from regulation to a competitive environment at the wellhead."

AGD is pleased to provide this report and hopes it is useful to the Committee's deliberations.

Very truly yours,

Dana Contratto

Dana Contratto

Enclosures

cc: All Members of the Senate Committee on
   Energy and Natural Resources
  All Members of the House Subcommittee on
   Fossil and Synthetic Fuels
  David Doane, Esquire
  Elizabeth Moler, Esquire
  Nancy Williams, Esquire
  Michael Boland, Esquire

IMPACT ON NATURAL GAS PRICES AND ANNUAL REQUIREMENTS OF PROPOSED LEGISLATION: A COMPARATIVE ANALYSIS

VOLUME I

Prepared by

National Economic Research Associates, Inc.

for the

Analytical Capability Task Force

Associated Gas Distributors

May 1983

n/e/r/a

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Table 1: If Deregulated Gas is Priced at Market Clearing Levels, Demand is Higher and Average Price Lower Than in a Fully Deregulated Market

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EXECUTIVE
SUMMARY

IMPACT ON NATURAL GAS PRICES AND ANNUAL REQUIREMENTS OF PROPOSED LEGISLATION: A COMPARATIVE ANALYSIS

Congress is currently considering a large number of bills which are intended to modify or change major portions of the Natural Gas Policy Act of 1978 (NGPA). NGPA established a time schedule for deregulating the pricing of natural gas at the wellhead, i.e., at the point where producers of natural gas sell their products to pipelines or others. However, some natural gas under established contracts--so-called "old" gas--was to remain under mandated price ceilings. Presumably those price ceilings would be below price levels established in a deregulated marketplace. Shortly after passage of NGPA, events in world oil markets and subsequent domestic policy disrupted the practical program of phased-in deregulation established by NGPA.

The proposed legislation seeks to deal with these disruptions. Each of the various bills has its own focus. Some seek immediate decontrol of natural gas prices at the wellhead in order to let the marketplace determine price levels. Others propose instead to deal with the disruptions by resetting NGPA controls. And still others seek to strengthen the marketplace's influence in wellhead pricing while still maintaining the basic framework and time schedule of NGPA, including maintenance of price ceilings on old gas. But each of the bills seek much the same end result: an efficient and fair transition to a marketplace for natural gas in which the basic economic laws of supply and demand gain ascendency over rationing and mandated pricing.

This report focuses on an analysis of one aspect of the current debate: the decontrol of old gas and, more generally, the level, coverage and remaining time schedule for natural gas price ceilings. Our conclusions are based on a comparative analysis of three bills:

1. S.615, Natural Gas Consumer Regulatory Reform Amendments of 1983, as proposed by the Administration;
2. H.R.2154, the Natural Gas Consumer Relief Act proposed by Congressman Gephardt; and
3. H.R.1752/S.689, Natural Gas Policy Act Amendments of 1983, proposed by Congressman Addabbo and Senator Heinz.

The Administration bill would essentially deregulate natural gas prices at the wellhead. Conversely, the Gephardt and Addabbo-Heinz bills would keep regulatory price ceilings on old gas. In addition, the Gephardt bill would roll back gas price ceilings to the levels reached in January 1982; would extend the coverage of these gas price ceilings; and would impose their coverage for two additional years beyond current NGPA time schedules.

The three bills are complex pieces of legislation which affect natural gas markets in a large variety of ways. We have attempted to compare the impact of these three bills along one important dimension: continuing ceiling prices on natural gas, and in particular, continued control of old gas prices.

In comparing the bills, we estimated effects on market prices and sales volume requirements using our energy forecasting and simulation computer-based model. Those quantitative results, together with our economic analysis lead us to conclude that continued regulatory control of old gas is not incompatible with an efficient and fair transition to market-determined wellhead pricing. With continued price ceilings on old gas, (a) more natural gas is made available to consumers at (b) lower average acquisition prices, while

(c) at the same time, higher prices are paid for substantial volumes of decontrolled natural gas; thus a positive inducement for gas supply expansion and development in the field will be enhanced. Moreover, continuing old gas price controls provides for increased continuity in rates and reduces market uncertainties currently faced by pipeline and distribution companies as well as by producers. And any distortions caused by deviating from a fully deregulated market price are not significant. Indeed, continuing controls may result in fewer distortions in the marketplace on balance than immediate wellhead price deregulation.

Of course, the proposed legislation covers many other aspects of natural gas markets as well. Most importantly, the bills include provisions reviewing and modifying current contractual practices between producers, pipelines, and distribution companies. These provisions are necessary to stimulate competitive market behavior on the part of all parties. If these inducements are not successful, however, distortions could occur. In particular, the Gephardt bill seems very sensitive to this assumption. Reimposition of January 1982 price control levels and extention of these controls for two years may lead producers to withdraw from the marketplace at rates inconsistent with projected market requirements for natural gas. On balance, therefore, we believe amending current NGPA practices via the Addabbo-Heinz bill is likely the best way to proceed in helping natural gas markets to make the transition from regulation to a competitive environment at the wellhead.

IMPACT ON NATURAL GAS PRICES AND ANNUAL REQUIREMENTS OF PROPOSED LEGISLATION: A COMPARATIVE ANALYSIS

I. INTRODUCTION

Congress is currently considering a large number of bills which are intended to modify or change major portions of the Natural Gas Policy Act of 1978 (NGPA). NGPA established a time schedule for deregulating the pricing of natural gas at the wellhead, i.e., at the point where producers of natural gas sell their products to pipelines or others. However, some natural gas under established contracts--so-called "old" gas[1]--was to remain under mandated price ceilings. Presumably those price ceilings would be below price levels established in a deregulated marketplace. Shortly after passage of NGPA, however, events in world oil markets and subsequent domestic policy disrupted the practical program of phased-in deregulation established by NGPA.

The proposed legislation seeks to deal with these disruptions. Each of the various bills has its own focus. Some seek immediate decontrol of natural gas prices at the wellhead in order to let the marketplace determine price levels. Others propose instead to deal with the disruptions by resetting NGPA controls: (a) rolling back gas price ceilings, (b) extending their coverage to virtually all categories of gas while (c) lengthing the time for phasing in deregulation. And still others seek to strengthen the marketplace's influence in wellhead pricing, while still maintaining the basic framework and time schedule of NGPA, including maintenance of price ceilings on old gas. But each of the bills seek much the same end result: an efficient and fair transition to a marketplace for natural gas in which the basic economic laws of supply and demand gain ascendency over rationing and mandated pricing.

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[1] For purposes of this report, "old" gas includes all gas marketed under Sections 104, 105, 106 and 109 of NGPA. See also the glossary of terms in Attachment B.

This report will focus on an analysis of one aspect of the current debate: the decontrol of old gas and, more generally, the level, coverage and remaining time schedule for natural gas price ceilings. Of course, the proposed legislation covers many other aspects of natural gas markets as well. Most importantly, the bills include provisions reviewing and modifying current contractual practices between producers, pipelines, and distribution companies. In what follows, adoption of these measures is assumed to form a general background for our analysis.

The economic principles reviewed below and the quantitative analysis we have performed leads us to conclude that continued regulatory control of old gas is not incompatible with an efficient and fair transition to market-determined wellhead pricing. With continued price ceilings on old gas, (a) more natural gas is made available to consumers at (b) lower average acquisition prices, while (c) at the same time, higher prices are paid for substantial volumes of decontrolled natural gas; thus a positive inducement for gas supply expansion and development in the field will be enhanced. On the other hand, a rollback of price ceilings and extension of the time period for transition to deregulation does not appear to provide additional economic benefits.

Our conclusions are based upon a comparative analysis of three bills:

1. S.615, Natural Gas Consumer Regulatory Reform Amendments of 1983, as proposed by the Administration;

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Of course, there are many other differences between these bills as well. We can't deal with all of these in this report. But a crucial similarity is that each of the three bills contains provisions to permit adjustment of terms and conditions in some contracts for purchases of natural gas at the wellhead. These provisions are intended to allow market forces to work more smoothly. Thus each bill has some form of proposal or proposals dealing with the following: (a) limitations on the minumum "take-or-pay" contracts; (b) market-out options available to sellers and/or buyers where current price provisions of a contract are seriously out of step with the marketplace; and (c) direct dealings between producers and distributors (or others) where natural gas pipelines would provide contract carriage of these gas volumes as needed and available. In our opinion, some form of these provisions is crucial to bring about necessary changes in marketplace practices and standards and make them workably competitive, regardless of the schedule for deregulation. Consequently, we assume throughout this report that some package of provisions is passed with the result that all deregulated gas is sold at market-clearing prices. We will comment somewhat further on this point below.

Our procedure is as follows. In the next section, we outline briefly the economic principles which lead us to conclude that continued regulation of old gas may provide for a more effective transition in the marketplace than immediate deregulation. We then describe the quantitative analysis we have used to test out this theory in Section III, including some of the specific assumptions in the NERA forecasting models we have employed. Section IV contains our principal findings from this quantitative analysis. And we summarize our principal conclusions in Section V.

II. ECONOMIC CONSIDERATIONS

If an analysis of the three proposed bills involved simply a static comparison of a fully deregulated (and competitive) marketplace with alternative forms of regulatory control, we almost certainly would not be writing this report. Economists are strongly predisposed to favor economic competition, not just because we can predict that competition will produce a more efficient result in the marketplace--although we can make this prediction--but also because we cannot predict the actual contours of the competitive marketplace with great accuracy. Competition is, by its nature, an innovative and dynamic process. It promotes the adoption of new contractual arrangements, new marketing practices and the like that no regulator could ever hope to anticipate successfully, let alone match through direct regulatory control. Economists, therefore, need to be fully convinced that a market contains special factors such as local monopoly, obligations to serve, or technological economies of scale, before advocating regulatory intervention.

But that is not the situation here. Rather, the real question is one of transition: how to move the wellhead market for natural gas from a predominantly regulated environment to a predominantly competitive one with minimum disruption to the economy. More particularly, the question arises because of the exposure of major fixed investments throughout the gas marketplace to substantial changes in terms, conditions, and price levels of natural gas sales. These major fixed investments include production facilities, interstate and intrastate natural gas pipelines and storage facilities. They also include local distribution plants and, ultimately, the gas-using equipment typically found in homes, businesses, and manufacturing plants throughout the country. These investments are particularly relevant in setting policy because of the almost certain likelihood of continued rate base regulation at the pipeline and distribution levels. In other words, theory may dictate that unencumbered market price signals be transmitted to ultimate consumers of natural gas; but, in practice, continued national and local regulation based on statutory obligations to set just and reasonable rates will look carefully at rate design and the basis for recovering and maintaining the rate base.[2]

We believe, therefore, that the effects of any proposed legislation be assessed using the following criteria. First, the legislation should strive for fair and equitable treatment of all affected parties. This, in turn, implies a degree of continuity in institutional practices, a point long recognized in the principles of regulation. Legislation should not encourage sharp deviations from existing practices which cause pure income transfers from one party to another without a demonstrable increase in efficiency in the marketplace.

Second, legislation should strive to minimize uncertainty brought on by changes in national policy. While we can predict future market-clearing price levels and natural gas requirements--indeed, we do so here--we must recognize the great uncertainties in this task. If, for example, market-clearing prices following deregulation were to turn out to be sharply higher than had been estimated, the effect on gas requirements and, consequently, the ability of natural gas pipelines and distribution companies to recover on fixed investments could be significantly impaired. Consequently, we believe it is entirely appropriate to consider how a particular piece of legislation would work in the face of such uncertainties.

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[2] In fact, under these circumstances maintaining price ceilings on old gas may reflect good theory as well as good practice. See the discussion in Attachment C.

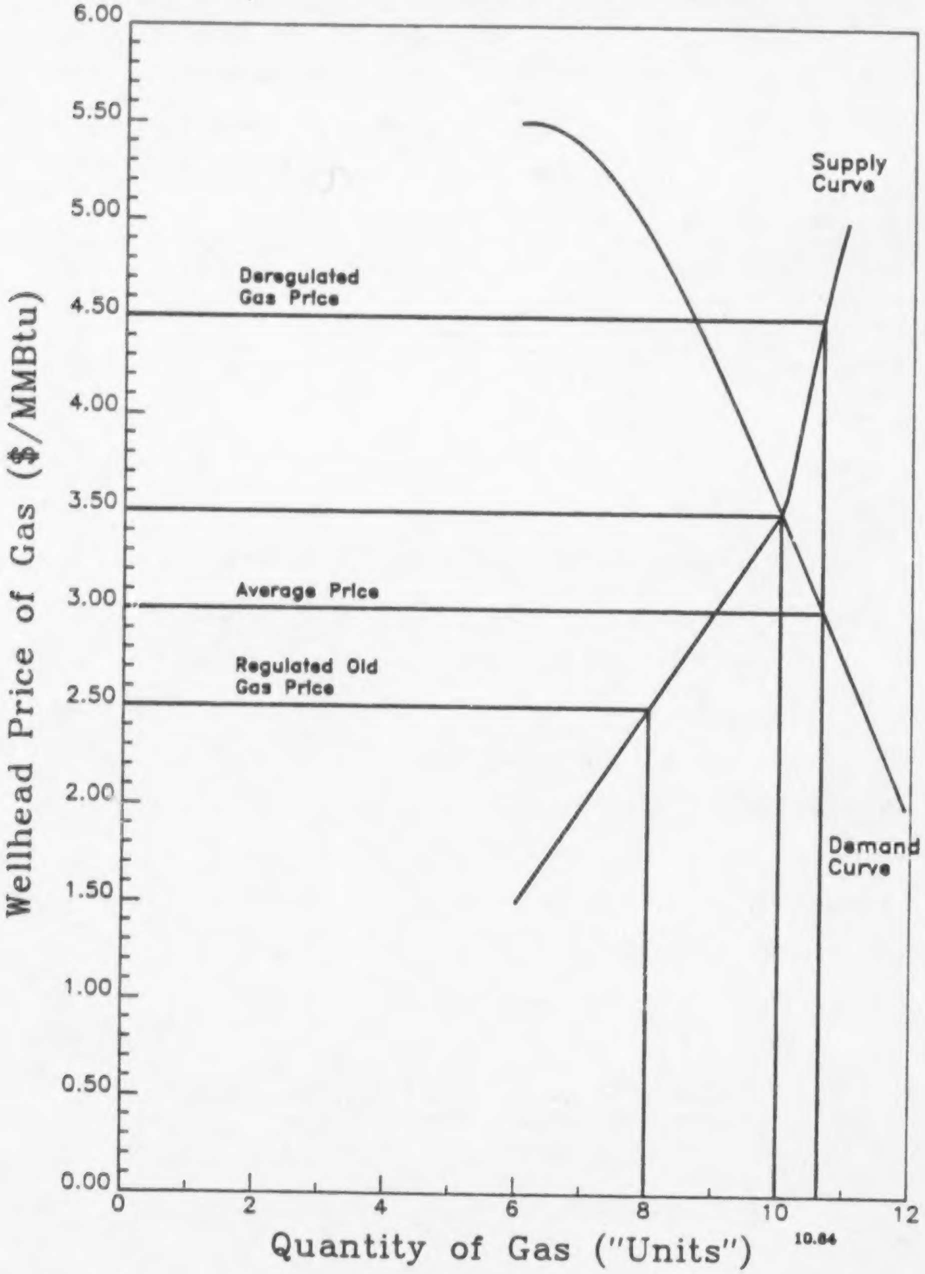
Without anything more, the first two points could be considered a mandate for no change in any circumstance. Thus, third, it is highly important that legislation strive to achieve its goals without serious distortion from the deregulated, competitive norm. As already noted, we believe the burden to support legislation involving serious distortions from the marketplace is heavy indeed.

With these principles in mind, we have considered the effects of old gas deregulation. In particular, we ask the following: assuming substantial deregulation of the bulk of Lower 48 natural gas supplies and the establishment of institutions necessary to guarantee market-clearing prices, what would be the likely effects of maintaining price controls on old gas? We believe there are important, though subtle, effects distinguishing this case from full deregulation on the one hand, and the traditional workings of average rolled-in gas prices on the other hand. The argument proceeds as follows:

Assume the basic contours of the natural gas market are described by the demand and supply curves in Figure 1. The market equilibrium is achieved at an average acquisition price for gas of $3.50. At that price, the level of demand is 10 "units." Now assume that a quantity of gas, 8 units, is sold at a price fixed

FIGURE 1

IF DEREGULATED GAS IS PRICED AT MARKET CLEARING LEVELS, DEMAND IS HIGHER AND AVERAGE PRICE LOWER THAN IN A FULLY DEREGULATED MARKET



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by regulation at $2.50. As depicted in Figure 1, there is significant excess demand above 8 units at this $2.50 price. The recent regulatory approach has been to roll in an additional 2 units of gas at a price such that the average rolled-in price comes out to be $3.50. For example, if an additional 2 units are secured at $7.50, average rolled-in price is equal to the weighted average of $2.50 (80 percent of the supply) and $7.50 (20 percent of the supply), or an average price of $3.50.

If, in the alternative, pressure were placed on pipelines to purchase additional supplies at the market clearing price of $3.50, the average rolled-in price upon which retail rates are based would be only $2.70. But, at this level, demand would substantially exceed 10 units, and gas curtailments would result. (Of course, at the $7.50 price, producers would want to bring much more gas supply to the market than is required. The result is a "gas bubble.")

The problem, then, is to find that price for deregulated gas at which demand--based on average rolled-in prices--just matches available supply. The level of that price will depend upon the price elasticities of demand and supply. But such a price will exist under most circumstances. For example, assume that the overall demand elasticity is approximately -0.4[3]--a not unreasonable assumption. Assume further that the supply elasticity of marginal supplies is only a little over 1.0. That is, a 10 percent increase in the price for the deregulated gas supply would increase the available deregulated and imported gas supplies by about 10 percent. That, too, is not an unreasonable assumption: combined with the implicit supply elasticity of old gas, namely 0.0, this gives an average supply elasticity of +0.25.[4] It can be shown that, for this case, market equilibrium will be reached if the price for new, deregulated gas supplies is set at about $4.50. That price level would call forth an additional supply of 2.64 units. Combined with old gas, total market supply would be 10.64 units, and average price would be $3.00. At that price, market demand would be 10.64 units, just balancing market supply.

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[3] This is approximately the average demand elasticity parameter in NERA's statistically estimated natural gas demand model.

Let us summarize the key features of this result. With continuing old gas price controls and market-clearing pricing, a two-tiered approach, the average acquisition cost of gas is substantially *lower* than in the deregulation or the traditional regulation cases--$3.00 vs. $3.50--and the quantity of gas consumed is substantially *greater*--10.64 units vs. 10 units. Yet, the market-clearing price for new gas not subject to price ceilings is actually *higher* than in full deregulation--$4.50 vs. $3.50--so natural gas exploration and development is stimulated. We have set forth details of the comparison in Table 1.

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[4] American Gas Association (1973). "Total Energy Resource Analysis (TERA), System Description;"

Department of Energy (1979). "Model Documentation for the Short Term Oil and Gas Supply Model, National Version;"

Erickson, E. and Spann, R. (1971). "Supply Response in a Regulated Industry: The Case of Natural Gas." *Bell Journal of Economics and Management Science*, Vol. 2, No. 1, pp. 94-121;

General Accounting Office, Report to the Subcommittee on Environment, Energy and Natural Resources, House Committee on Government Operations, "An Analysis of Natural Gas Pricing Policy Alternatives," Vol. 2, February 3, 1983.

Khazzoom, J. D. (1971). "The FPC Staff's Econometric Model of Natural Gas Supply in the United States." *Bell Journal of Economics and Management Science*, Vol. 2, No. 1, pp. 51-93; and

MacAvoy, P. W. and Pindyck, R. S. (1973). "Alternative Regulatory Policies for Dealing with the Natural Gas Shortage." *Bell Journal of Economics and Management Science*, Vol. 4, No. 2, pp. 454-498.

TABLE 1

IF DEREGULATED GAS IS PRICED AT MARKET CLEARING LEVELS, DEMAND IS HIGHER AND AVERAGE PRICE IS LOWER THAN IN A FULLY DEREGULATED MARKET

Hypothetical Example

	Traditional Pricing (1)	Deregulation (2)	Two-Tiered Approach (3)
Price of "Old" Gas	$2.50	$3.50	$2.50
Price of Deregulated Gas	$7.50	$3.50	$4.50
Quantity of "Old" Gas	8.00 units	8.00 units	8.00 units
Quantity of Deregulated Gas	2.00 units	2.00 units	2.64 units
Total Quantity	10.00 units	10.00 units	10.64 units
Average Price	$3.50	$3.50	$3.00

Is the actual "distortion" in this result--greater consumption and lower average prices than in a deregulated market--appropriate as a matter of economic policy?[5] The answer to this question depends, in part, on the size of the distortion which is something we address in the following sections. However, assuming that distortions in the quantity of gas requirements are not very large while prices are measurably below fully deregulated levels, we believe the appropriateness of this policy is supportable on two grounds:

1. The phasing in of price movements through this mechanism provides a more equitable treatment of current and future gas consumers than complete deregulation.[6]
2. There is some risk under complete deregulation that gas distribution and/or pipeline companies may lose substantial portions of their market and, as a result, not be able to recover their fixed cost. This is the so-called "trolley car syndrome." The proposal with no old gas decontrol policy provides a way of minimizing that risk while still being consistent with a phased move to ultimate deregulation.

These seem to us to be the essence of a policy argument in support of continued price controls on old gas as typified by the Addabbo-Heinz bill approach rather than a complete deregulation approach. However, two aspects of this approach which are crucial if the argument is to be sound cannot be overstressed: first, accountability of pipelines must be insured so that prices in the field reflect market conditions and not a pass-along computation based averaged, rolled-in prices; and, second, the size of distortions in the marketplace in terms of total gas requirements and prices do not turn out to be substantial. While we can't enforce the former, we can attempt to estimate the latter.

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[5] As noted above, continuing regulation of pipeline and retail rates may well mean that there is no economic distortion at all. See the discussion in Attachment C.

[6] Recall that continuity in regulatory rate-setting has long been deemed a virtue. See for example, James C. Bonbright, Principles of Public Utility Rates (New York: Columbia University Press, 1961).

III. ESTIMATING THE EFFECTS OF MAINTAINING CONTROL OF OLD GAS PRICES IN AN AMENDED NGPA FORMAT: METHODOLOGY

In order to test the market price and sales implications of continued control of old gas prices we have used NERA's gas and electricity forcasting and simulation model, NERAGEM.[7] We first simulated market results over the period 1981 to 2000 assuming that the Addabbo-Heinz bill became effective law at approximately the beginning of 1984. We then compared these results with two alternatives. We analyzed market clearing results for the same time period assuming that the Administration's bill became law and resulted in complete deregulation of wellhead gas prices beginning approximately in January 1984. And we did the same analysis assuming that the Gephardt bill became effective January 1, 1984. Recall that this piece of legislation rolls back NGPA price ceilings to January 1, 1982 levels and extends NGPA controls for an additional two years, among other changes in current practices.

Details of the forecasting assumptions used in connection with running our simulation model are contained in Attachment F to this report. We think it may be helpful to discuss briefly the analysis of gas supplies in our model in order to bring into focus the different assumptions used for each of the three bills.

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[7] Detailed regional and state demand forecast results are made using a companion model, NERAGEL. The models are described briefly in Attachment E.

For purposes of our analysis we consider four broad categories of gas supply. There are two categories with fixed price levels and estimated volumes and an additional two categories with prices and volumes set by market-clearing forces. The first category of fixed supplies are Lower 48 gas supplies subject to NGPA price ceilings. For each category of such gas, we estimate annual volumes and unit prices. The information is then combined into weighted average price and total supply figures for the entire category for each year of our forecast. An illustrative set of calculations are shown on Table 2.

The second category of fixed supplies are all supplemental projects made available to the marketplace, e.g., LNG imports and existing SNG projects. For purposes of this analysis, we assume that all existing supplemental projects will continue to be included in the overall U.S. gas supply, regardless of the underlying economics.

The two categories of supply with market-determined volumes and prices are Lower 48 supplies and pipeline imports from Canada and Mexico. Lower 48 supplies would include all gas sold at the wellhead not subject to price ceilings. The amount and price for this gas is determined by finding the market-clearing price level. In other words, we estimate the total supplies of gas made available at different price levels and match this against estimated requirements for natural gas for all consumers. The market-clearing price is that price at which supply provided to the market just equals market demand. The same principle applies for imports. Price levels for imports, however, may differ somewhat from Lower 48 supplies due to locational differences and resulting transportation costs.

Within this framework, the specific assumptions incorporated into our comparison of the three bills are as follows:

1. Addabbo-Heinz Bill. Deregulation of new gas categories as per NGPA with some prices below ceiling levels when dictated by market forces; but no deregulation of old gas. Retail prices for natural gas are based on the average, rolled-in acquisition cost of gas; but market-out, minimum take-or-pay, contract carriage, and other accountability provisions force pipelines and others to pay only market-clearing prices for deregulated gas. Market-clearing prices and supply-demand balance begin in 1984.

2. Administration Bill. All categories of Lower 48 gas supply are deregulated. Prices are set at market-clearing levels beginning in 1984.

3. Gephardt Bill. Ceiling prices are imposed on all categories of gas as set forth in the bill. All NGPA price ceilings are rolled back to January 1982 levels and general ceiling price adjustment factors are eliminated. Prices for currently deregulated gas are subject to a new price ceiling at 150 percent of Section 103 gas prices. No market-clearing prices are calculated. However, if estimated gas supplies exceed demand, prices may fall to market-clearing levels for some categories.

IV. ESTIMATING THE EFFECTS OF MAINTAINING CONTROL OF OLD GAS PRICES IN AN AMENDED NGPA FORMAT: RESULTS

The principal results of our analysis are contained in Tables 3 and 4 located at the end of this section. Each table consists of three pages: a Supply Analysis Report, Price Analysis Report and Annual Sales Report.

Columns (2) and (3) of the Supply Analysis show estimated gas volumes under NGPA ceiling prices or from supplemental projects, respectively. The corresponding prices calculated for these two categories are in columns (6) and (7) of this page. Simulated market supplies from Lower 48 reserves or from imports are shown in columns (4) and (5); the corresponding estimated price levels are shown in columns (8) and (9). The last three columns of the Supply Analysis contain information on total production from Lower 48 reserves (both deregulated gas and gas subject to NGPA ceiling prices), estimated maximum deliverability from these reserves, and an estimate of utilization of Lower 48 resources. The maximum deliverability figure gives some idea of how much production we can get from Lower 48 proven reserves. And it shows how this figure changes over time in response to depletion and to price-induced newly established reserves. Utilization serves as an early indicator of the need to raise or lower market prices. In other words, as utilization moves to a level of 90 percent or higher, prices rise reflecting the relatively high level of demand for Lower 48 gas. Conversely, at utilization levels of 80 percent or less, considerable excess available supplies of natural gas indicate that market prices will have to fall.

The second page of each table then contains information on the average acquisition price of natural gas and resulting retail prices. The average acquisition price is calculated as a rolled-in figure based on the four categories of gas previously identified. The acquisition price is converted to a city-gate price and to retail prices by the addition of transmission margins and distribution margins, respectively. We have assumed that the real cost of transmission and distribution on average throughout the country remains constant during the forecast period. This same assumption is used in our detailed state and regional results.[8] However, in those cases, we use separate transmission and distribution margins appropriate to each region and state. The last two columns on the Price Analysis page then show supply and demand estimates for the marketplace.

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[8] These detailed regional and state gas requirement results for the Addabbo-Heinz scenario are contained in Attachment G.

Normally, these figures are in balance if market-clearing forces are allowed to work. Naturally, there is an imbalance in 1982 and 1983 in every case, with supply considerably exceeding demand. This reflects the current gas bubble.

The final page contains information on gas sales for each major customer class. Residential, commercial and industrial gas sales are estimated in our simulation model. This page also contains average annual rates of growth in gas sales and average gas prices for selected time periods.

Major differences in our simulation runs are reflected in the first columns of the Supply Analysis page for each table. In the Administration's "Deregulation scenario," all Lower 48 gas is placed in the market category rather than the fixed category beginning in 1984. In the "Addabbo-Heinz scenario," fixed supplies include estimated volumes of old gas (NGPA Sections 104, 105, 106 and 109 vintage gas) throughout the forecast. For 1981-1983, fixed supplies, of course, include contracts for gas under Sections 102 and 103 of NGPA as well. However, beginning in 1984, we find that market prices fall below the ceiling prices for Sections 102 and 103 gas; consequently, they have been moved to the market category, beginning in 1984.

Figures 2, 3, and 4 contain the basic comparisons of the scenarios based on the bills. The comparisons are for (a) average acquisition cost of natural gas supplies in the field, (b) the total demand for natural gas given those average acquisition costs, and (c) market-clearing prices for deregulated Lower 48 natural gas.

The pattern of results conform reasonably well to the economic considerations set forth in Section II. First, the average acquisition cost of gas under deregulation is consistently higher than under scenarios which do not

FIGURE 2

COMPARISON OF THE AVERAGE ACQUISITION COST OF NATURAL GAS UNDER DIFFERENT LEGISLATIVE SCENARIOS

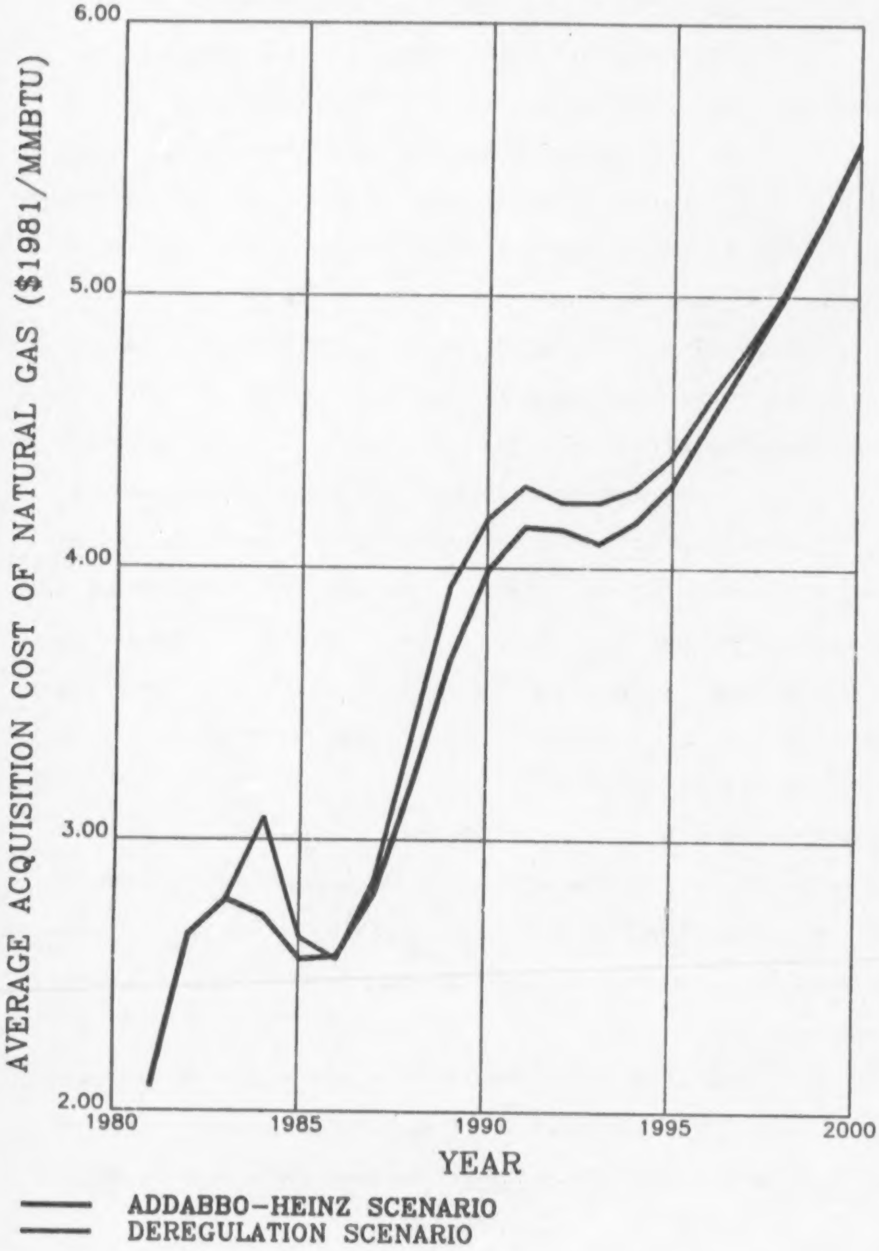


FIGURE 3

ESTIMATES OF THE TOTAL DEMAND FOR NATURAL GAS UNDER DIFFERENT LEGISLATIVE SCENARIOS

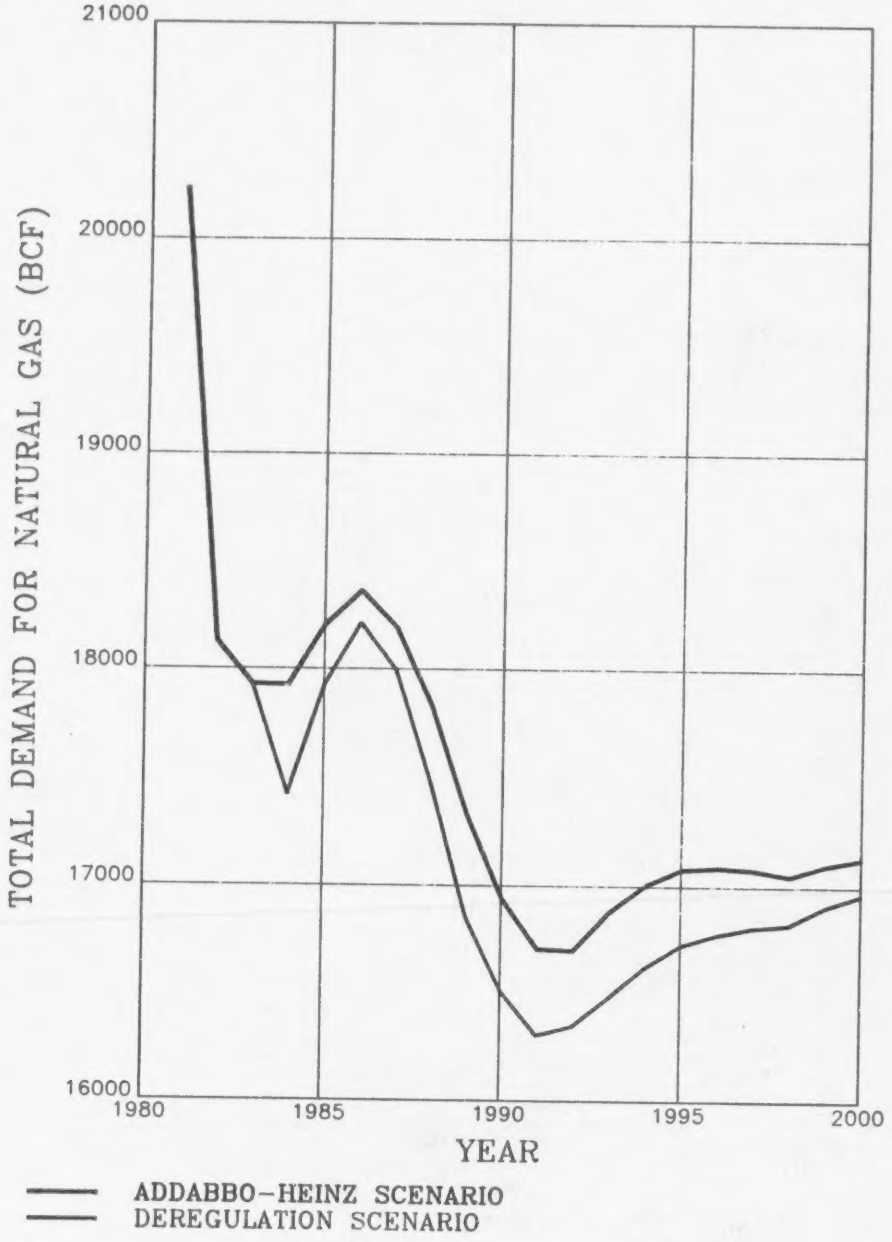
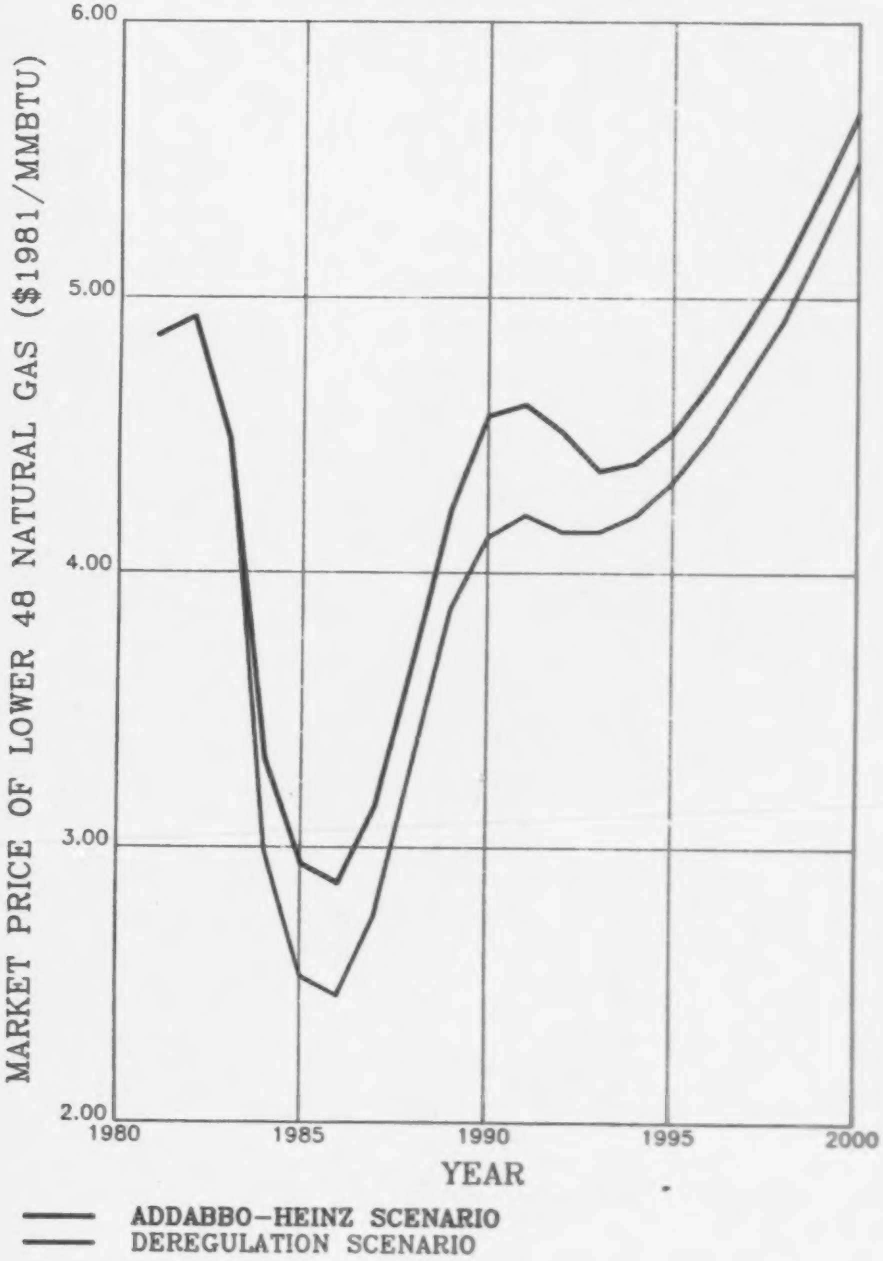


FIGURE 4

COMPARISON OF THE MARKET (DEREGULATED) PRICE OF LOWER 48 NATURAL GAS UNDER DIFFERENT LEGISLATIVE SCENARIOS



include old gas price decontrol.[9] The differences are greatest immediately following total deregulation assumed to be in 1984, and again roughly in 1988 to 1993. Over a longer time frame, average acquisition price of gas under the different scenarios converge as old gas supplies constantly diminish.

In computing the average acquisition cost of gas in the Gephardt scenario, we have assumed that new gas contracts subject to Sections 102 and 103 price ceilings would be signed during the period 1984 to 1987. But our analysis shows that these prices are below market-clearing price levels in this scenario. For example, in 1985, the market price level in the Gephardt scenario for 741 Bcf of gas produced (Section 107 gas) is $3.34 (all figures in 1981 dollars). The Section 103 ceiling price is $2.41. The deregulated sales, therefore, are at a price well within the ceiling price for Section 107 gas under Gephardt, i.e., 150 percent of $2.41, or $3.61. But the Sections 102 and 103 prices are well below the market. This should lead producers to favor development of higher cost gas

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[9] Several comments on the movement of the average acquisition cost of gas from 1981 to 2000 seem appropriate. The level of forecast prices has not been a major concern of this report. Rather, we have focused on comparative trends of the scenarios. Nevertheless, the movement upward of average acquisition costs, particularly during the periods 1985-1990 and 1995-2000, is noteworthy. For example, in the Addabbo-Heinz scenario, the increase is from $2.56 up to $3.99, an average growth rate of 9.3 percent, over 1985-1990. And the increase between 1995-2000 is nearly as large: $4.31 up to $5.56, or 5.2 percent average growth.

Several forces are at work. Chief among them are declining deliverability from Lower 48 reserves with depletion and reduced new additions in the 1980s in response to prior declines in market prices. In effect, once the current gas bubble is gone, real prices may rise sharply unless the Lower 48 gas resource base is far more ample and resilient than we have assumed in our simulation runs.

There is another factor. We have assumed no shift in Canadian and Mexican export policies other than in response to changing price levels. These imports hover at or below 1 Tcf as a result. But we believe exports could increase substantially--to at least 2 to 3 Tcf--if permitted by export policy at the border. Indeed, most analyses assume that level of imported gas in U.S. supplies in the 1990s. The impact of this change in Canadian and Mexican policy is explored in Attachment D.

TABLE 2

CALCULATION OF WEIGHTED AVERAGE ACQUISITION PRICES: ADDABBO-HEINZ SCENARIO

(1981 Dollars Per MMBtu)

Supply Category	1983 (1)	1984 (2)	1985 (3)	1986 (4)	1987 (5)	1988 (6)	1989 (7)	1990 (8)	1995 (9)	2000 (10)
1. Pre-NGPA Gas										
Volume (Bcf)	8,143	7,194	6,392	5,698	5,113	4,593	4,015	3,470	1,632	768
Percent of Total	42	40	35	31	28	26	23	20	10	4
Price	1.61	1.61	1.61	1.61	1.61	1.61	1.61	1.61	1.61	1.61
2. NGPA Gas										
Volume (Bcf)	8,902	-	-	-	-	-	-	-	-	-
Percent of Total	46	-	-	-	-	-	-	-	-	-
Price	3.31	-	-	-	-	-	-	-	-	-
3. Deregulated Gas										
Volume (Bcf)	901	9,412	10,565	11,431	11,792	11,851	11,827	11,921	13,858	14,559
Percent of Total	5	53	58	62	65	66	68	70	81	85
Price	4.48	3.32	2.94	2.87	3.15	3.68	4.23	4.57	4.51	5.67
4. Imports										
Volume (Bcf)	834	618	547	535	587	685	787	849	840	1,055
Percent of Total	4	3	3	3	3	4	5	5	5	6
Price	4.56	3.38	2.99	2.92	3.21	3.74	4.30	4.64	4.59	5.77
5. Supplements										
Volume (Bcf)	700	700	700	700	700	700	700	700	750	750
Percent of Total	4	4	4	4	4	4	4	4	4	4
Price	5.20	5.20	5.20	5.20	5.20	5.20	5.20	5.20	6.10	7.05
Total Volume (Bcf)	19,480	17,924	18,204	18,364	18,192	17,829	17,329	16,940	17,080	17,132
Weighted Average Price	2.78	2.72	2.56	2.57	2.80	3.21	3.66	3.99	4.31	5.56

and/or to cutback or withdraw altogether from the marketplace. The end result, as an economic matter, would be Sections 102 and 103 prices gravitating toward the market price in one fashion or another. So the result would probably look a good deal like the Addabbo-Heinz scenario. Consequently, we do not present separate detailed results for the Gephardt bill in our report.

Since average acquisition price of natural gas under deregulation is higher than in other scenarios, it follows that total market demand for gas from residential, commercial and industrial customers is lower (Figure 3). Depending on the specific year selected, the gas requirements under deregulation are up to 500 billion cubic feet (Bcf) below the level with continued price controls for old gas. More typically, the difference is of the order of magnitude of 100 Bcf to 400 Bcf.

Finally, the additional gas requirements under Addabbo-Heinz suggest the need for higher market supplies and, therefore, higher market prices. This is indeed the case as shown in Figure 4. Even though the average acquisition cost is lower than in the deregulation scenario, the market price for deregulated gas supplies is higher. This result is a direct reflection of maintaining controls on old gas prices. With lower average acquisition costs, consumers are willing to bid up the price for deregulated gas supplies in order to balance total market demand and supply.

In sum, we do indeed observe the result suggested in Section II: throughout the forecast period, with continued control of old prices, we observe (1) lower average acquisition costs for gas and (2) correspondingly higher rates of natural gas consumption with (3) higher market-clearing prices for deregulated natural gas. The question then becomes: Do these results conform with the criteria for good economic policy set forth in Section II?

In our opinion, the most clear cut affirmative case can be made for reducing uncertainty. With continued control of old gas prices, average acquisition prices for gas are lower than with deregulation. This is particularly true for the first years following complete deregulation, i.e., 1984 and 1985. Correspondingly, the demand for natural gas is somewhat higher in these scenarios. These results suggest that the policy of keeping controls on old gas prices provides some insurance against uncertainties in the performance of natural gas markets in the future. This is so in several important respects. First, one cannot discount the possibility that deregulated natural gas prices will not fall as quickly as projected here--by fully $1.49 (from $4.48 to $2.99) or 33 percent in 1984 continuing down to roughly $2.50 in 1985 and 1986. To the extent that these results overestimate the basic strength of market forces, they understate the comparison of average acquisition prices depending on whether old gas prices are decontrolled or not. Second, higher acquisition prices may result in significantly lower gas sales, leaving pipeline and distribution companies vulnerable. The reduced sales would make it increasingly difficult to recover the cost of their transmission and distribution networks over a broad enough base of sales.

Indeed, the results may again underestimate the magnitude of difference between scenarios for a second reason. At lower sales volumes, fixed costs of pipeline and distribution companies will have to be recovered over a smaller base of sales, thus resulting in higher unit costs. These higher unit costs should be reflected in rising real costs of transmission and distribution. This could lead, in turn, to further erosion in gas markets. However, we have made no assumption that these costs would in fact rise in a deregulation scenario.

The next criterion has to do with avoiding large distortions from deregulated market results. These distortions, as we have measured them, do not seem so severe as to be overwhelming by themselves. The difference in average acquisition prices is moderate, on the order of 20 cents in most years. It seems to us very unlikely that major economic dislocations would result from differences in market prices that are well under five percent. Indeed, on a percentage basis, the difference in market volumes are similarly small. This indicates that few consumers are substantially overconsuming natural gas as a result of the estimated lower average acquisition cost.

The final criteria concerns fairness and equity. These are basically social and political criteria, not economic ones. It should be noted that continued control of old gas prices restricts a pure transfer of economic wealth from consumers to producers of old gas. But there is no reason to think that this will have an adverse effect on the marketplace. In theory, the price of inframarginal, old gas sales should not affect fundamental market demand and supply forces: these are based on marginal price levels and not on prices for old gas. Indeed, the market price for gas in the field is actually higher for the Addabbo-Heinz scenario with continued old gas price control than for the total deregulation scenario.

It might be argued that the transfer of wealth would encourage current producers of old gas to undertake new exploration and development of gas fields. But that argument seems without merit to us for three reasons. First, the price incentives for natural gas supply development should be based on the anticipated market price for such gas, and not on old gas prices. Second, there is no reason to believe that with decontrol, additional revenues flowing to producers of old gas would, in turn, lead them to undertake additional exploration and development. And third, a transfer of wealth on this basis for the purpose of promoting additional exploration and development amounts, in effect, to a conscription of capital at very low interest costs. This conscription would surely represent as large a deviation from market results--the otherwise intended consumption and saving behavior of consumers of natural gas--as anything resulting from continued control of old gas prices.

A second dimension of fairness and equity considerations poses a more significant problem. The analysis so far has been based upon average acquisition prices and market-clearing prices of natural gas. However, it is likely that some pipelines and their customers will have greater access to old gas supplies over the forecast horizon than others. Consequently, it may be that continued control of old gas prices will leave some consumers of natural gas facing prices below those that would be obtained under full deregulation, but other customers with prices above those that would have occurred with full deregulation. The latter group would consist of those customers whose suppliers of natural gas have little or no access to old gas supplies.

As a purely economic matter, it is impossible to say how significant this distortion may be. Obviously, on balance, more consumers face lower prices with continued gas decontrol than vice versa; that is reflected in the lower average acquisition price for gas. But a careful attempt to identify the major groups of customers falling solidly on one side of the comparison or the other--by type of customer and by region of the country--should be undertaken so that this information can be a part of any final decision process.

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GAS SUPPLY MODEL: NATIONAL BASE CASE ASSUMPTIONS -- ADDABBO - HEINZ SCENARIO                MON. MAY  2, 1983,  2:13 PM


                                                      SUPPLY ANALYSIS
                                                      ---------------


          --FIXED SUPPLIES-- --MARKET SUPPLIES--  ---FIXED PRICES--- ---MARKET PRICES---                    MAXIMUM  LOWER 48
                     SUPPLE-                                 SUPPLE-                              TOTAL  DELIVER-  UTILIZA-
    YEAR  LOWER 48     MENTS  LOWER 48   IMPORTS  LOWER 48     MENTS  LOWER 48   IMPORTS  LOWER 48   ABILITY      TION
--------  --------  --------  --------  --------  --------  --------  --------  --------  --------  --------  --------
          ---------------( BCF )---------------   ------------( $1981/MMBTU )-----------  (  BCF )  (  BCF )     ( % )
                                                                                                              (AS OF 1/1)
    1981  18196.00    176.00    960.00    904.00      1.77      5.20      4.86      4.94  19156.00  22000.00     87.07
    1982  18110.00    300.00    686.40    917.12      2.40      5.20      4.93      5.01  18796.40  21500.94     89.06
    1983  17045.00    700.00    900.84    833.74      2.50      5.20      4.48      4.56  17945.84  21161.28     80.12
    1984   7194.00    700.00   9412.46    618.42      1.61      5.20      3.32      3.38  16606.46  20901.35     79.43
    1985   6392.00    700.00  10565.27    546.79      1.61      5.20      2.94      2.99  16957.27  20371.67     82.73
    1986   5698.00    700.00  11431.26    534.68      1.61      5.20      2.87      2.92  17129.26  19611.24     86.44
    1987   5113.00    700.00  11792.43    586.54      1.61      5.20      3.15      3.21  16905.43  18722.27     90.93
    1988   4593.00    700.00  11850.76    684.81      1.61      5.20      3.68      3.74  16443.76  17895.71     92.59
    1989   4015.00    700.00  11826.85    786.76      1.61      5.20      4.23      4.30  15841.85  17405.79     91.42
    1990   3470.00    700.00  11920.69    849.33      1.61      5.20      4.57      4.64  15390.69  17250.28     89.55
    1991   2984.00    750.00  12113.99    858.30      1.61      6.10      4.61      4.69  15097.99  17331.13     88.80
    1992   2566.00    750.00  12543.79    838.65      1.61      6.10      4.51      4.58  15109.79  17491.90     86.38
    1993   2207.00    750.00  13109.27    813.45      1.61      6.10      4.37      4.45  15316.27  17610.14     85.81
    1994   1898.00    750.00  13538.58    818.52      1.61      6.10      4.40      4.47  15436.58  17642.23     88.18
    1995   1632.00    750.00  13857.86    839.62      1.61      6.10      4.51      4.59  15489.86  17594.49     88.91
    1996   1404.00    750.00  14063.13    872.06      1.61      7.05      4.69      4.77  15467.13  17506.33     89.28
    1997   1207.00    750.00  14208.95    912.03      1.61      7.05      4.90      4.98  15415.95  17416.46     89.53
    1998   1038.00    750.00  14308.50    952.78      1.61      7.05      5.12      5.21  15346.50  17353.38     89.44
    1999    892.00    750.00  14456.17   1002.20      1.61      7.05      5.39      5.48  15348.17  17311.18     90.01
    2000    768.00    750.00  14559.17   1055.07      1.61      7.05      5.67      5.77  15327.17  17292.36     90.00
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n/e/r/a

TABLE 3
Page 1 of 3

GAS SUPPLY MODEL: NATIONAL BASE CASE ASSUMPTIONS -- ADDABBO - HEINZ SCENARIO

MON, MAY 2, 1983, 2:13 PM

TABLE 3
Page 2 of 3

PRICE ANALYSIS

	AVERAGE ACQUISITION	TRANS-MISSION		----DISTRIBUTION MARGINS----			-------AVERAGE PRICES-------				
YEAR	PRICE	COST	CITYGATE PRICE	RESIDEN-TIAL	COMMER-CIAL	INDUS-TRIAL	RESIDEN-TIAL	COMMER-CIAL	INDUS-TRIAL	SUPPLY	DEMAND
	------------------------------($1981/MMBTU)---									-----(BCF	)-----
1981	2.09	.80	2.89	1.30	1.03	.46	4.19	3.92	3.35	20236.00	20235.53
1982	2.65	.80	3.45	1.30	1.03	.46	4.75	4.48	3.91	20013.52	18128.49
1983	2.78	.80	3.58	1.30	1.03	.46	4.88	4.61	4.04	19479.58	17927.63
1984	2.72	.80	3.52	1.30	1.03	.46	4.82	4.55	3.98	17924.88	17924.88
1985	2.56	.80	3.36	1.30	1.03	.46	4.66	4.39	3.82	18204.06	18204.06
1986	2.57	.80	3.37	1.30	1.03	.46	4.67	4.40	3.83	18363.95	18363.95
1987	2.80	.80	3.60	1.30	1.03	.46	4.90	4.63	4.06	18191.97	18191.97
1988	3.21	.80	4.01	1.30	1.03	.46	5.31	5.04	4.47	17828.57	17828.57
1989	3.66	.60	4.46	1.30	1.03	.46	5.76	5.49	4.92	17328.61	17328.61
1990	3.99	.80	4.79	1.30	1.03	.46	6.09	5.82	5.25	16940.02	16940.02
1991	4.15	.80	4.95	1.30	1.03	.46	6.25	5.98	5.41	16706.29	16706.29
1992	4.14	.80	4.94	1.30	1.03	.46	6.24	5.97	5.40	16698.44	16698.44
1993	4.09	.80	4.89	1.30	1.03	.46	6.19	5.92	5.35	16879.72	16879.72
1994	4.17	.80	4.97	1.30	1.03	.46	6.27	6.00	5.43	17005.10	17005.10
1995	4.31	.80	5.11	1.30	1.03	.46	6.41	6.14	5.57	17079.48	17079.48
1996	4.54	.80	5.34	1.30	1.03	.46	6.64	6.37	5.80	17089.20	17089.20
1997	4.77	.80	5.57	1.30	1.03	.46	6.87	6.60	6.03	17077.97	17077.97
1998	5.00	.80	5.80	1.30	1.03	.46	7.10	6.83	6.26	17049.28	17049.28
1999	5.27	.80	6.07	1.30	1.03	.46	7.37	7.10	6.53	17100.37	17100.37
2000	5.56	.80	6.36	1.30	1.03	.46	7.66	7.39	6.82	17132.25	17132.25

GAS DEMAND MODEL: NATIONAL BASE CASE ASSUMPTIONS -- ADDABBO - HEINZ SCENARIO

MON, MAY 2, 1983, 2:13 PM

ANNUAL SALES, SUPPLY AND PRICE OF GAS

	GAS SALES							AVERAGE GAS PRICE		
YEAR	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	ELECTRIC UTILITY INDUSTRY	ALL OTHER	DEMAND	SUPPLY	RESIDENTIAL	COMMERCIAL	INDUSTRIAL
	(BCF)					(BCF)	(BCF)	($ /MMBTU)		
1981	4645.58	2479.52	6638.23	3681.00	2791.20	20235.53	20236.00	4.19	3.92	3.35
1982	4393.53	2383.39	5551.39	3300.00	2500.18	18128.49	20013.52	4.75	4.48	3.91
1983	4387.42	2356.21	5251.40	3500.00	2432.59	17927.63	19479.58	4.88	4.61	4.04
1984	4503.29	2361.25	5128.21	3500.00	2432.13	17924.88	17924.88	4.82	4.55	3.98
1985	4691.25	2393.34	5173.52	3460.00	2485.95	18204.06	18204.06	4.66	4.39	3.82
1986	4790.06	2400.17	5333.03	3300.00	2539.88	18363.95	18363.95	4.67	4.40	3.83
1987	4784.07	2364.95	5398.34	3100.00	2544.61	18191.97	18191.97	4.90	4.63	4.06
1988	4700.15	2295.75	5332.47	3000.00	2500.19	17828.57	17828.57	5.31	5.04	4.47
1989	4609.48	2219.55	5166.82	2900.00	2432.76	17328.61	17328.61	5.76	5.49	4.92
1990	4582.79	2163.25	5009.88	2800.00	2384.10	16940.02	16940.02	6.09	5.82	5.25
1991	4609.98	2131.51	4903.24	2700.00	2361.55	16706.29	16706.29	6.25	5.98	5.41
1992	4709.22	2123.69	4888.44	2600.00	2377.09	16698.44	16698.44	6.24	5.97	5.40
1993	4832.41	2124.26	4998.54	2500.00	2424.52	16879.72	16879.72	6.19	5.92	5.35
1994	4910.98	2111.68	5119.93	2400.00	2462.52	17005.10	17005.10	6.27	6.00	5.43
1995	4967.09	2092.38	5228.08	2300.00	2491.92	17079.48	17079.48	6.41	6.14	5.57
1996	4989.72	2063.28	5325.78	2200.00	2510.42	17089.20	17089.20	6.64	6.37	5.80
1997	5018.78	2035.66	5398.15	2100.00	2525.38	17077.97	17077.97	6.87	6.60	6.03
1998	5049.36	2008.51	5454.00	2000.00	2537.41	17049.28	17049.28	7.10	6.83	6.26
1999	5067.31	1977.80	5509.23	2000.00	2546.02	17100.37	17100.37	7.37	7.10	6.53
2000	5081.83	1946.17	5552.85	2000.00	2551.40	17132.25	17132.25	7.66	7.39	6.82

AVERAGE ANNUAL RATES OF GROWTH

1981-1985	.24%	-.88%	-6.04%	-1.54%	-2.85%	-2.61%	-2.61%	2.73%	2.91%	3.38%
1985-1990	-.47%	-2.00%	-.64%	-4.14%	-.83%	-1.43%	-1.43%	5.47%	5.78%	6.54%
1990-1995	1.62%	-.66%	.86%	-3.86%	.89%	.16%	.16%	1.03%	1.08%	1.19%
1995-2000	.46%	-1.44%	1.21%	-2.76%	.47%	.06%	.06%	3.62%	3.77%	4.12%
1981-2000	.47%	-1.27%	-.94%	-3.16%	-.47%	-.87%	-.87%	3.23%	3.39%	3.81%

TABLE 3
Page 3 of 3

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GAS SUPPLY MODEL: NATIONAL BASE CASE ASSUMPTIONS -- DEREGULATION SCENARIO                MON, MAY  2, 1983,  2:28 PM


                                          SUPPLY ANALYSIS
                                          ---------------

         --FIXED SUPPLIES-- --MARKET SUPPLIES--  ---FIXED PRICES--- ---MARKET PRICES---            MAXIMUM  LOWER 48
                   SUPPLE-                                  SUPPLE-                        TOTAL  DELIVER-  UTILIZA-
    YEAR LOWER 48    MENTS LOWER 48   IMPORTS  LOWER 48    MENTS LOWER 48   IMPORTS LOWER 48   ABILITY      TION
-------- -------- -------- --------  --------  -------- -------- --------  -------- --------  --------  --------
         ---------------( BCF )---------------  -------------( $1981/MMBTU )------------  (  BCF  ) (  BCF  )    ( % )
                                                                                                     (AS OF 1/1)
    1981 18196.00   176.00   960.00    904.00      1.77     5.20     4.86      4.94 19156.00  22000.00     87.07
    1982 18110.00   300.00   686.40    917.12      2.40     5.20     4.93      5.01 18796.40  21500.94     89.06
    1983 17045.00   700.00   900.84    833.74      2.50     5.20     4.40      4.56 17945.84  21161.28     80.12
    1984      .00   700.00 16164.73    555.53       .00     5.20     2.99      3.04 16164.73  20956.56     77.05
    1985      .00   700.00 16752.86    470.84       .00     5.20     2.53      2.57 16752.86  20385.94     81.18
    1986      .00   700.00 17056.18    456.76       .00     5.20     2.46      2.50 17056.18  19512.80     85.82
    1987      .00   700.00 16781.22    511.85       .00     5.20     2.75      2.80 16781.22  18471.55     91.71
    1988      .00   700.00 16152.13    615.89       .00     5.20     3.31      3.37 16152.13  17481.36     92.91
    1989      .00   700.00 15432.89    720.12       .00     5.20     3.87      3.94 15432.89  16907.97     91.44
    1990      .00   700.00 15041.37    767.75       .00     5.20     4.13      4.20 15041.37  16722.64     91.99
    1991      .00   750.00 14771.86    783.39       .00     6.10     4.21      4.28 14771.86  16802.66     89.43
    1992      .00   750.00 14826.84    771.60       .00     6.10     4.15      4.22 14826.84  16976.89     86.99
    1993      .00   750.00 14958.85    772.24       .00     6.10     4.15      4.22 14958.85  17128.53     87.97
    1994      .00   750.00 15088.69    782.26       .00     6.10     4.21      4.27 15088.69  17204.82     88.54
    1995      .00   750.00 15170.36    804.75       .00     6.10     4.33      4.40 15170.36  17212.95     89.14
    1996      .00   750.00 15189.16    836.55       .00     7.05     4.50      4.57 15189.16  17183.10     89.46
    1997      .00   750.00 15185.07    875.36       .00     7.05     4.71      4.78 15185.07  17147.67     89.71
    1998      .00   750.00 15157.59    916.08       .00     7.05     4.92      5.01 15157.59  17125.05     89.66
    1999      .00   750.00 15191.46    966.66       .00     7.05     5.20      5.28 15191.46  17112.37     90.27
    2000      .00   750.00 15192.89   1021.58       .00     7.05     5.49      5.58 15192.89  17116.25     90.26
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TABLE 4
Page 1 of 3

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GAS SUPPLY MODEL: NATIONAL BASE CASE ASSUMPTIONS -- DEREGULATION SCENARIO                 MON, MAY  2, 1983,  2:20 PM


                                                     PRICE ANALYSIS
                                                     --------------


               AVERAGE     TRANS-              ----DISTRIBUTION MARGINS----   -------AVERAGE PRICES-------
           ACQUISITION   MISSION   CITYGATE  RESIDEN-    COMMER-     INDUS-  RESIDEN-    COMMER-     INDUS-
     YEAR        PRICE      COST      PRICE      TIAL       CIAL      TRIAL      TIAL       CIAL      TRIAL     SUPPLY     DEMAND
 --------     --------  --------   --------  --------   --------   --------  --------   --------   --------   --------   --------
              ------------------------------( $1981/MMBTU )------------------------------------------------   -----( BCF )-----

     1981         2.09       .80       2.89      1.30       1.03        .46      4.19       3.92       3.35   20236.00   20239.53
     1982         2.65       .80       3.45      1.30       1.03        .46      4.75       4.48       3.91   20013.52   18120.49
     1983         2.78       .80       3.58      1.30       1.03        .46      4.88       4.61       4.04   19479.58   17927.63
     1984         3.08       .80       3.88      1.30       1.03        .46      5.18       4.91       4.34   17420.26   17420.26
     1985         2.64       .80       3.44      1.30       1.03        .46      4.74       4.47       3.90   17923.70   17923.70
     1986         2.56       .80       3.36      1.30       1.03        .46      4.66       4.39       3.82   18212.94   18212.94
     1987         2.85       .80       3.65      1.30       1.03        .46      4.95       4.68       4.11   17993.07   17993.07
     1988         3.39       .80       4.19      1.30       1.03        .46      5.49       5.22       4.65   17468.01   17468.01
     1989         3.93       .80       4.73      1.30       1.03        .46      6.03       5.76       5.19   16853.02   16853.02
     1990         4.18       .80       4.98      1.30       1.03        .46      6.28       6.01       5.44   16509.12   16509.12
     1991         4.30       .80       5.10      1.30       1.03        .46      6.40       6.13       5.56   16305.24   16305.24
     1992         4.24       .80       5.04      1.30       1.03        .46      6.34       6.07       5.50   16340.44   16340.44
     1993         4.24       .80       5.04      1.30       1.03        .46      6.34       6.07       5.50   16401.09   16401.09
     1994         4.29       .80       5.09      1.30       1.03        .46      6.39       6.12       5.55   16620.95   16620.95
     1995         4.41       .80       5.21      1.30       1.03        .46      6.51       6.24       5.67   16725.11   16725.11
     1996         4.62       .80       5.42      1.30       1.03        .46      6.72       6.45       5.88   16775.71   16775.71
     1997         4.81       .80       5.61      1.30       1.03        .46      6.91       6.64       6.07   16810.43   16810.43
     1998         5.02       .80       5.82      1.30       1.03        .46      7.12       6.85       6.28   16823.67   16823.67
     1999         5.28       .80       6.08      1.30       1.03        .46      7.38       7.11       6.54   16900.13   16900.13
     2000         5.57       .80       6.37      1.30       1.03        .46      7.67       7.40       6.83   16964.47   16964.47
```

TABLE 4
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V. CONCLUSIONS

The Administration, Addabbo-Heinz and Gephardt bills are complex pieces of legislation which affect natural gas markets in a large variety of ways. We have attempted to compare the impact of these three bills along one important dimension: continuing ceiling prices on gas, and in particular, continued control of old gas prices.

In comparing these three bills, we estimated effects on market price and sales volume requirements using our energy forecasting and simulation computer-based model. The results we have obtained confirm our original conjecture. Continuing old gas price controls provides for increased continuity in rates and reduces market uncertainties currently faced by pipeline and distribution companies as well as by producers. Furthermore, the distortions caused by deviating from a fully deregulated market price are not significant. In particular, the distortions do not cause a major uneconomic increase in natural gas consumption when compared with the fully deregulated scenario proposed by the Administration. Finally, with continued control of old gas prices, market prices for new gas exceed prices under full deregulation. Thus, continued old gas price controls are not inconsistent with the need to develop additional Lower 48 reserves of natural gas; indeed, they may stimulate activity in this area.

Our analysis suggests two notes of caution with regard to these findings. First, while average results in the marketplace look favorable, a result of continued old gas price controls may be that some customers wind up paying higher prices than under full decontrol. The distribution of this impact should be considered fully before a final decision on continuing old gas price controls is reached.

Second, our results depend upon the success of provisions within each of the three bills in stimulating competitive market behavior on the part of producers, pipelines, distributors, and users. If these inducements are not successful, however, some distortions in our results could occur. In particular, the results of the Gephardt scenario seem to us to be sensitive to this assumption. First, we found that Section 107 gas market-clearing prices in the Gephardt scenario were below the proposed ceiling level of 150 percent of Section 103 gas price ceilings. But we have assumed in this scenario that additional new gas contracts for Sections 102 and 103 gas would be marketed at their price ceilings through 1987, price ceilings below the estimated market-clearing prices. We question whether this result could be achieved in practice. More likely, the development of Sections 102 and 103 gas reserves would be stifled as producers shifted to 107 gas, a result not terribly different from what has happened in the recent past.

In addition, reimposition of January 1982 price control levels and extension of those controls for two years may lead natural gas producers to withdraw from the marketplace at rates inconsistent with projected market requirements for natural gas. That reaction to reimposition of controls would add greater uncertainty and fluctuations to the marketplace. In our opinion, and based solely on the comparisons reviewed in this report, we do not believe that any possible advantages of the Gephardt bill provisions over the Addabbo-Heinz provisions are worth this risk. Consequently, on balance, we believe amending current NGPA practices via the Addabbo-Heinz bill is likely the best way to proceed in helping natural gas markets to make the transition from regulation to a competitive environment at the wellhead.

ATTACHMENT A

MEMBERS OF ASSOCIATED GAS DISTRIBUTORS

Baltimore Gas & Electric Co.
Bay State Gas Co.
The Berkshire Gas Co.
Boston Gas Co.
The Brooklyn Union Gas Co.
Central Hudson Gas & Electric Corp.
Chesapeake Utilities Corp.
City of Holyoke, Mass., Gas & Electric Dept.
City of Westfield Gas & Electric Light Dept.
Colonial Gas Co.
Commonwealth Gas Co.
Concord Natural Gas Corp.
Consolidated Edison Company of New York, Inc.
Delmarva Power & Light Co.
Elizabethtown Gas Co.
Essex County Gas Co.
Fitchburg Gas & Electric Light Co.
Gas Service, Inc.
Long Island Lighting Co.
Lynchburg Gas Co.
Manchester Gas Co.
New Jersey Natural Gas Co.
New York State Electric & Gas Corp.
North Carolina Natural Gas Corp.
Northeast Georgia Municipal Gas Utilities
Northeast Utilities
Northern Utilities, Inc.
Pennsylvania Gas & Water Co.
Pennsylvania & Southern Gas Co.
Pequot Gas Co.
Philadelphia Electric Co.
Philadelphia Gas Works
Providence Gas Co.
Public Service Company of North Carolina, Inc.
Public Service Electric & Gas Co.
South County Gas Co.
South Jersey Gas Co.
The Southern Connecticut Gas Co.
UGI Corporation
Valley Gas Co.
Washington Gas Light Co.

ATTACHMENT B

GLOSSARY

constant dollars

Dollars of constant purchasing power. The regularly reported price of a good divided by a price index gives the price in constant dollars.

demand

(1) The amount of a good that buyers are ready to buy at each specified price in a given market at a given time. Also called demand schedule. (2) Sometimes used to mean "quantity demanded" at one specified price.

distribution margin

Real unit cost of distribution.

economy of scale

The reduction in average unit cost associated with the increase in the size of plant or activity up to a point and thereafter an increase in such cost.

gross national product

The money value of the total output of goods and services within a country in a give period of time, usually a year, before allowance for depreciation and consumption of capital goods.

Lower 48 gas

Gas from the continental United States.

marginal cost

At any given point of production, the addition to total costs of the last unit produced.

marginal supplies

The increment or decrement to supplies when the price is changed.

market-clearing price

Price where supply equals demand.

market equilibrium

Market equilibrium in economic theory refers to the immediate price in the market at which exchange of goods currently takes place and the goods are cleared from the market.

market-out

A provision allowing a buyer (and/or seller) to modify or totally forego sales under a contract if the buyer cannot market gas at contract prices or negotiate new contract prices.

minimum take-or-pay

A clause in a gas purchase contract requiring the purchaser to take, or failing to take, to pay for the minimum annual contract volume of gas which the producer-seller has available for delivery. Under such clause the purchaser usually has the right to take the gas paid for (but undelivered) in later years.

NGPA

National Gas Policy Act of 1978.

price elasticity

In the case of demand, the arithmetical relationship between the percentage change in the quantity of a commodity or service bought and the percentage change in the price; in the case of supply, the relationship between the percentage change in the quantity offered and the percentage change in the price. If the coefficient of elasticity is more than unity, the demand (or supply) is said to be elastic; if less than unity, it is said to be inelastic; if just unity, it is said to be unitary.

price reaction formulation

Functional description of the way demand and supply adjust to each other.

contract carriage

A phrase used to describe an arrangement whereby a large consumer of gas purchases gas from producers and then makes a contract with a pipeline company for the transmission of such gas from seller to buyer.

refiner acquisition cost

The cost to the refiner, including transportation and fees, of crude oil. The composite cost is the average of domestic and imported crude oil costs and represents the amount of crude oil cost that refiners may pass on to their customers.

residual fuel oil

The heavier oils that remain after the distillate fuel oils and lighter hydrocarbons are boiled off in refinery operations. Included are products known as No. 5 and No. 6 fuel oil that conform to ASTM Specification D396, Navy Special Fuel Oil, Bunker C fuel oil, and acid sludge and pitch used as refinery fuels. Residual fuel oil is used for the production of electric power, space heating, vessel bunkering, and various industrial purposes.

supply

(1) The amount of a good that sellers are ready to sell at each specified price in a given market at a given time. Also called supply schedule. (2) Sometimes used to mean quantity forthcoming at one specified price.

transmission margin

Real unit cost of transmission.

wellhead gas

Gas brought to the surface, ready for transportation to refinery or ship or pipeline. Wellhead costs usually refer to the cost to bring the gas to the surface and do not include costs of transportation, refining, distribution, or profit.

ATTACHMENT C

DOES TWO-TIER PRICING OF NATURAL GAS VIOLATE PRINCIPLES OF ECONOMIC EFFICIENCY?

Economists going back to Adam Smith have repeatedly pointed to the economic virtues of a competitive market. Prices arrived at through the interplay of market forces generally reflect the marginal costs to society of producing additional amounts of goods and services. This means that when you or I decide on a purchase, the price we may pay just covers the cost of additional labor, capital, energy, and other resources consumed in producing whatever it is we may buy. Or, at least prices will tend toward that result.

This is the primary reason that economists characterize market results as being economically efficient, and government intervention in a market as being inefficient. The full decontrol advocate argues that this principle of efficiency applies to natural gas just as it does to other goods and services. You simply can't fool the market--and shouldn't try.

"But," responds the advocate of two-tier pricing, "look what control of old gas prices brings. Consumers pay lower prices than under full deregulation. They get to buy more gas. And they pay more for the portion of gas supply that is deregulated, thereby stimulating exploration and development."

"Precisely my point," answers the full decontrol advocate. "The economy's scarce resources are being artificially diverted to gas production from higher valued uses. Look at your example in Figure 1. Consumers are paying only $3.00 for gas. But each additional unit they buy costs $4.50 to produce! That's because of two-tier pricing. Not only are consumers getting the wrong price signals, but gas producers in the field are too. They are spending resources to explore for gas costing up to $4.50 when they really should have spent only enough to develop gas costing up to $3.50. And those extra resources could have been used by the economy elsewhere. You sure better hope that two-tier pricing doesn't cause large distortions."

The two-tier price advocate points out that the distortions aren't very large--only about two percent more consumption on average. And then he notes that whatever may happen in Congress, rate regulation of pipelines and retail rates will continue. "Remember that consumers pay a price reflecting not only production but also transmission and distribution (T&D). What then is the marginal cost of gas at retail? Since the additional consumption is small, it seems very likely that the marginal cost of T&D is close to zero! But regulation makes it likely that consumers will pay to recover embedded costs of these facilities, averaging, say, $1.80. That means retail customers paying the average two-tier price in the field, $3.00 in the example, plus T&D costs face a price of around $4.80. And this is just about the marginal cost of bringing them that gas--$4.50 to produce it, but very little to transmit and distribute it.

"In fact, if all gas were decontrolled, consumers would have to pay more for gas at retail--around $5.30--than its marginal cost. As a result they would underconsume gas, underutilize our existing pipeline and gas distribution facilities, and impose higher resource costs in alternatives, most likely oil and electricity. The real distortion today, therefore, would be caused by full decontrol. With two-tier pricing, consumers pay approximately marginal costs at retail and producers receive a market price for new gas--in short, even economists should be happy, as long as consumption doesn't change too much."

"And one thing further. Even though two-tier pricing brings down retail prices and increases consumption by only a few percent, the dollar impact can be pretty large. For one thing, total cost to consumers falls by about $1 billion per year through much of the forecast period. Yet, for the lower total bill they get more gas. Suppose it's 365 Bcf more, or 1 Bcf a day. That is the equivalent of about 175,000 barrels of oil a day. If all of the extra consumption of gas--brought on by bringing retail prices down to marginal costs--replaces oil, we would reduce not only imports but also the world price of crude. In fact, NERA studies suggest that this reduction in demand for crude could reduce oil prices by 15 to 25 cents per barrel. And think of what that is worth!"

TABLE C-1

THE ANNUAL SAVINGS FROM CONTINUED OLD GAS PRICE CONTROL—AN ILLUSTRATION

Steps		Aggregate Savings (Millions of 1981 Dollars)
(1)	Save 20 cents on purchases of 17,000 Bcf	+3,400
(2)	Buy additional 365 Bcf	-2,000
	Net	+1,400
(3)	Displace oil equivalent of 175,000 barrels per day	+2,200
(4)	Save 20 cents per barrel on oil consumed 10,000,000 barrels per day due to resulting price reduction	730
	Total	4,300

Illustration is based on the following: (a) average acquisition costs and retail prices of natural gas are 20 cents below full deregulation case ($5.60 vs. $5.80); consumptions increases by 365 Bcf above deregulated levels of 170,000 Bcf.

ATTACHMENT D

THE MARKET IMPLICATIONS OF UNITED STATES, CANADIAN AND MEXICAN POLICIES TOWARD U.S. PIPELINE IMPORTS OF NATURAL GAS

One feature common to all the simulation runs we have reviewed is the sharp rebound in real gas prices during the period 1985 to 1990 followed by further increases in 1995 to 2000. For example, in the Addabbo-Heinz Scenario, the increase is from $2.56 up to $3.99, an average growth rate of 9.3 percent over 1985 to 1990. And the increase between 1995 and 2000 is nearly as large: $4.31 up to $5.56, or 5.2 percent average growth.

Several forces are at work. Chief among them are declining deliverability from Lower 48 reserves with depletion and reduced new additions in the 1980s in response to prior declines in market prices. In effect, once the current "gas bubble" is gone, real prices may rise sharply unless the Lower 48 gas resource base is far more ample and resilient than we have assumed in our simulation runs.

There is another factor. We have assumed no shift in Canadian and Mexican export policies (or U.S. import policies) other than in response to changing price levels. These imports hover at or below 1 Tcf as a result. But we believe exports could increase substantially--to at least 2 or 3 Tcf--if permitted by government policy at the border. Indeed, most analyses assume that the level of imported gas in U.S. supplies in the 1990s will be 2 or 3 Tcf.

In order to test the effects of additional amounts of border gas on market volumes and supplies, we reran our Addabbo-Heinz Scenario. First, we assumed moderate expansion of imports throughout the forecast period. Whereas we had set reference import levels at 1 Tcf, we now increased reference levels as follows:

1986 to 1990 - 1.5 Tcf

1991 to 1995 - 2.0 Tcf

1996 to 2000 - 2.5 Tcf

The results of this run are summarized in Table G-1. Complete results are in Table G-3 at the end of this section.

The additional import volumes shown in column (1) of Table G-1 have a clear impact on the Lower 48 market. By year 2000, market price is $5.13 instead of $5.67, or over 9 percent below the Base Case. Import volumes in year 2000 rise by 1,330 Bcf. But this is not largely at the expense of Lower 48 production. Rather, total Lower 48 requirements increase by 1,048 Bcf as a result of lower market prices. So Lower 48 production is down less than 300 Bcf. Similar--albeit more moderate--impacts are felt in earlier years.

As a second test, we assumed that reference levels of imports accelerated sharply in 1989 in response to rapidly increasing U.S. market prices. We set the reference levels for this year and each subsequent year at 2.5 Tcf. Results are summarized in Table G-2 and are presented in detail in Table G-4. Lower 48 market price increases are further smoothed out over the period 1985-2000 in this case. In fact, with this revised border policy, retail gas prices grow fairly smoothly in real terms at about 1 percent per year after 1985.

GAS DEMAND MODEL: NATIONAL BASE CASE ASSUMPTIONS -- DEREGULATION SCENARIO

MON, MAY 2, 1983, 2:29 PM

ANNUAL SALES, SUPPLY AND PRICE OF GAS

YEAR	GAS SALES					DEMAND	SUPPLY	AVERAGE GAS PRICE		
	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	ELECTRIC UTILITY INDUSTRY	ALL OTHER			RESIDENTIAL	COMMERCIAL	INDUSTRIAL
	(BCF)					(BCF)	(BCF)	($ /MMBTU)		
1981	4645.50	2479.52	6638.23	3601.00	2791.20	20235.53	20236.00	4.19	3.92	3.35
1982	4793.53	2383.39	5551.39	3300.00	2500.10	18128.49	20013.52	4.75	4.48	3.91
1983	4387.42	2356.21	5251.40	3500.00	2432.59	17927.63	19479.50	4.80	4.61	4.04
1984	4327.06	2290.60	4955.47	3500.00	2347.05	17420.26	17420.26	5.10	4.91	4.34
1985	4648.36	2366.26	5010.40	3460.00	2430.67	[illegible]	17923.70	4.74	4.47	3.90
1986	4787.75	2387.59	5223.19	3300.00	2514.42	[illegible]	18212.94	4.66	4.39	3.82
1987	4749.60	2341.57	5290.02	3100.00	2511.07	17993.07	17993.07	4.95	4.60	4.11
1988	4687.42	2250.56	5170.62	3000.00	2439.40	17468.01	17468.01	5.49	5.22	4.65
1989	4486.05	2162.54	4951.05	2900.00	2352.57	16853.02	16853.02	6.03	5.76	5.19
1990	4488.09	2115.01	4793.77	2800.00	2311.45	16509.12	16509.12	6.28	6.01	5.44
1991	4524.53	2087.41	4699.37	2700.00	2293.93	16305.24	16305.24	6.40	6.13	5.56
1992	4637.36	2084.37	4780.63	2600.00	2310.00	16340.44	16340.44	6.34	6.07	5.50
1993	4733.92	2077.16	4812.70	2500.00	2357.30	16401.09	16401.09	6.34	6.07	5.50
1994	4817.63	2066.54	4939.03	2400.00	2397.74	16620.95	16620.95	6.39	6.12	5.55
1995	4880.93	2050.00	5061.92	2300.00	2432.17	16725.11	16725.11	6.51	6.24	5.67
1996	4912.21	2024.54	5181.41	2200.00	2457.56	16775.71	16775.71	6.72	6.45	5.88
1997	4949.66	2000.54	5279.95	2100.00	2480.20	16810.43	16810.43	6.91	6.64	6.07
1998	4986.19	1976.40	5361.71	2000.00	2499.37	16823.67	16823.67	7.12	6.85	6.28
1999	5007.34	1947.96	5439.22	2000.00	2513.61	16908.13	16908.13	7.38	7.11	6.54
2000	5023.09	1917.90	5500.29	2000.00	2523.11	16964.47	16964.47	7.67	7.40	6.83

AVERAGE ANNUAL RATES OF GROWTH

1981-1985	.01%	-1.16%	-6.79%	-1.94%	-3.32%	-2.99%	-2.99%	3.12%	3.32%	3.06%
1985-1990	-.70%	-2.21%	-.08%	-4.14%	-1.07%	-1.63%	-1.63%	5.80%	6.11%	6.09%
1990-1995	1.69%	-.63%	1.09%	-3.86%	1.02%	.26%	.26%	.73%	.76%	.84%
1995-2000	.50%	-1.32%	1.67%	-2.76%	.74%	.20%	.20%	3.33%	3.46%	3.78%
1981-2000	.41%	-1.34%	-.99%	-3.16%	-.53%	-.92%	-.92%	3.23%	3.40%	3.82%

TABLE 4
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TABLE D-1

COMPARISON OF ADDABBO-HEINZ SCENARIO BASE CASE AND IMPORTS CASE

Selected Years	Border Imports		Lower 48 Market Price		Lower 48 Production		Lower 48 Requirements	
	Base	Imports	Base	Imports	Base	Imports	Base	Imports
	------Bcf------		--$ 1981/MMBtu--		------Bcf------		------Bcf------	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1985	547	547	2.94	2.94	16,957	16,957	18,204	18,204
1986	535	802	2.87	2.87	17,129	16,853	18,364	18,355
1990	849	1,211	4.57	4.34	15,391	15,341	16,940	17,252
1991	858	1,576	4.61	4.24	15,098	14,855	16,706	17,181
1995	840	1,600	4.51	4.30	15,490	15,253	17,079	17,603
1996	872	2,007	4.69	4.32	15,467	15,021	17,089	17,778
2000	1,055	2,394	5.67	5.15	15,327	15,036	17,132	18,180

Note: Reference Imports in Base Case constant at 1.0 Tcf.
Reference Imports in Imports Case as follows:

1981-1985: 1.0 Tcf
1986-1990: 1.5 Tcf
1991-1995: 2.0 Tcf
1996-2000: 2.5 Tcf

Source: Tables 3 and G-3.

TABLE D-2

COMPARISON OF ADDABBO-HEINZ SCENARIO BASE CASE AND ACCELERATED IMPORTS CASE

Selected Years	Border Imports		Lower 48 Market Price		Lower 48 Production		Lower 48 Requirements	
	Base	Accelerated	Base	Accelerated	Base	Accelerated	Base	Accelerated
	--------Bcf-------		---$ 1981/MMBtu---		---------Bcf--------		---------Bcf--------	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1985	547	547	2.94	2.94	16,957	16,957	18,204	18,204
1986	535	802	2.87	2.87	17,129	16,853	18,364	18,355
1990	849	1,821	4.57	3.92	15,391	15,195	16,940	17,716
1991	858	1,836	4.61	3.95	15,098	15,054	16,706	17,640
1995	840	1,988	4.51	4.28	15,490	15,040	17,079	17,779
1996	872	2,046	4.69	4.40	15,467	15,021	17,089	17,817
2000	1,055	2,400	5.67	5.16	15,327	15,017	17,132	18,167

Note: Reference Imports in Base Case constant at 1.0 Tcf.
Reference Imports in Imports Case as follows:

1981-1985: 1.0 Tcf
1986-1988: 1.5 Tcf
1989-2000: 2.5 Tcf

Source: Tables 3 and G-4.

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GAS SUPPLY MODEL: NATIONAL CASE - ADDABBO-HEINZ - MODERATE IMPORT EXPANSION                    THU, MAY  5, 1983, 12:17 PM


                                                 SUPPLY ANALYSIS
                                                 ---------------

         --FIXED SUPPLIES-- --MARKET SUPPLIES--  ---FIXED PRICES--- ---MARKET PRICES---             MAXIMUM  LOWER 48
                     SUPPLE-                                SUPPLE-                         TOTAL  DELIVER-  UTILIZA-
   YEAR  LOWER 48     MENTS  LOWER 48   IMPORTS  LOWER 48     MENTS  LOWER 48   IMPORTS  LOWER 48   ABILITY      TION
-------- --------  --------  --------  --------  --------  --------  --------  --------  --------  --------  --------
         ---------------( BCF )---------------  ------------( $1981/MMBTU )-----------  ( BCF )   ( BCF )     ( % )
                                                                                                          (AS OF 1/1)
   1981  18196.00    176.00    960.00    904.00      1.77      5.20      4.86      4.94  19156.00  22000.00     87.07
   1982  18110.00    300.00    686.40    917.12      2.40      5.20      4.93      5.01  18796.40  21500.94     89.06
   1983  17045.00    700.00    900.84    833.74      2.50      5.20      4.48      4.56  17945.84  21161.28     80.12
   1984   7194.00    700.00   9412.46    618.42      1.61      5.20      3.32      3.38  16606.46  20901.35     79.43
   1985   6392.00    700.00  10565.27    546.79      1.61      5.20      2.94      2.99  16957.27  20371.67     82.73
   1986   5698.00    700.00  11155.13    802.03      1.61      5.20      2.87      2.92  16853.13  19645.75     86.44
   1987   5113.00    700.00  11632.61    858.94      1.61      5.20      3.05      3.10  16745.61  18766.43     89.87
   1988   4593.00    700.00  11775.32    974.77      1.61      5.20      3.49      3.55  16368.32  17918.88     92.25
   1989   4015.00    700.00  11783.53   1115.30      1.61      5.20      4.00      4.06  15798.53  17383.42     91.45
   1990   3470.00    700.00  11871.44   1210.92      1.61      5.20      4.34      4.41  15341.44  17171.27     89.79
   1991   2984.00    750.00  11871.05   1575.77      1.61      6.10      4.24      4.31  14855.05  17218.58     85.01
   1992   2566.00    750.00  12438.34   1528.52      1.61      6.10      4.11      4.18  15004.34  17318.88     85.82
   1993   2207.00    750.00  12947.81   1524.97      1.61      6.10      4.10      4.17  15154.81  17387.57     87.90
   1994   1898.00    750.00  13344.36   1550.28      1.61      6.10      4.17      4.24  15242.36  17389.34     88.65
   1995   1632.00    750.00  13621.12   1680.13      1.61      6.10      4.30      4.37  15253.12  17328.47     89.17
   1996   1404.00    750.00  13617.35   2006.66      1.61      7.05      4.32      4.39  15021.35  17275.57     88.31
   1997   1207.00    750.00  13892.98   2064.29      1.61      7.05      4.44      4.51  15099.98  17202.41     89.31
   1998   1038.00    750.00  14047.90   2150.31      1.61      7.05      4.62      4.70  15085.90  17136.28     89.67
   1999    892.00    750.00  14188.51   2269.03      1.61      7.05      4.88      4.96  15080.51  17081.46     90.40
   2000    768.00    750.00  14267.62   2394.12      1.61      7.05      5.15      5.23  15035.62  17045.90     90.30
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TABLE D-3
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GAS SUPPLY MODEL: NATIONAL CASE - ADDABBO-HEINZ - MODERATE IMPORT EXPANSION                 THU, MAY  5, 1983, 12:17 PM


                                                      PRICE ANALYSIS
                                                      --------------

                AVERAGE      TRANS-                ----DISTRIBUTION MARGINS----   -------AVERAGE PRICES-------
            ACQUISITION    MISSION    CITYGATE   RESIDEN-    COMMER-     INDUS-   RESIDEN-    COMMER-    INDUS-
    YEAR          PRICE       COST       PRICE       TIAL       CIAL      TRIAL       TIAL       CIAL     TRIAL      SUPPLY      DEMAND
  --------     --------   --------    --------   --------   --------   --------   --------   --------   --------   --------   --------
                -------------------------------( $1981/MMBTU )---------------------------------------------------  -----( BCF )-----

    1981           2.09        .80        2.89       1.30       1.03        .46       4.19       3.92       3.35    20236.00   20235.53
    1982           2.65        .80        3.45       1.30       1.03        .46       4.75       4.48       3.91    20013.52   18120.49
    1983           2.78        .80        3.58       1.30       1.03        .46       4.88       4.61       4.04    19479.58   17927.63
    1984           2.72        .80        3.52       1.30       1.03        .46       4.82       4.55       3.98    17924.88   17924.88
    1985           2.56        .80        3.36       1.30       1.03        .46       4.66       4.39       3.82    18204.06   18204.06
    1986           2.57        .80        3.37       1.30       1.03        .46       4.67       4.40       3.83    18355.16   18355.16
    1987           2.73        .80        3.53       1.30       1.03        .46       4.83       4.56       3.99    18296.55   18296.55
    1988           3.08        .80        3.88       1.30       1.03        .46       5.18       4.91       4.34    18043.10   18043.10
    1989           3.50        .80        4.30       1.30       1.03        .46       5.60       5.33       4.76    17613.84   17613.84
    1990           3.83        .80        4.63       1.30       1.03        .46       5.93       5.66       5.09    17252.36   17252.36
    1991           3.87        .80        4.67       1.30       1.03        .46       5.97       5.70       5.13    17180.81   17180.81
    1992           3.83        .80        4.63       1.30       1.03        .46       5.93       5.66       5.09    17282.86   17282.86
    1993           3.88        .80        4.68       1.30       1.03        .46       5.98       5.71       5.14    17429.78   17429.78
    1994           3.98        .80        4.78       1.30       1.03        .46       6.08       5.81       5.24    17542.64   17542.64
    1995           4.13        .80        4.93       1.30       1.03        .46       6.23       5.96       5.39    17603.25   17603.25
    1996           4.23        .80        5.03       1.30       1.03        .46       6.33       6.06       5.49    17778.00   17778.00
    1997           4.37        .80        5.17       1.30       1.03        .46       6.47       6.20       5.63    17914.27   17914.27
    1998           4.56        .80        5.36       1.30       1.03        .46       6.66       6.39       5.82    17986.21   17986.21
    1999           4.82        .80        5.62       1.30       1.03        .46       6.92       6.65       6.08    18099.54   18099.54
    2000           5.09        .80        5.89       1.30       1.03        .46       7.19       6.92       6.35    18179.74   18179.74
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GAS DEMAND MODEL: NATIONAL CASE - ADDABBO-HEINZ - MODERATE IMPORT EXPANSION THU, MAY 5, 1983, 12:17 PM

ANNUAL SALES, SUPPLY AND PRICE OF GAS

YEAR	GAS SALES							AVERAGE GAS PRICE		
	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	ELECTRIC UTILITY INDUSTRY	ALL OTHER	DEMAND	SUPPLY	RESIDENTIAL	COMMERCIAL	INDUSTRIAL
	(BCF)					(BCF)	(BCF)	($ /MMBTU)		
1981	4645.58	2479.52	6638.23	3681.00	2791.20	20235.53	20236.00	4.19	3.92	3.35
1982	4393.53	2383.39	5551.39	3300.00	2500.10	18128.49	20013.52	4.75	4.48	3.91
1983	4387.42	2356.21	5251.46	3500.00	2432.59	17927.63	19479.50	4.88	4.61	4.04
1984	4503.29	2361.25	5128.21	3500.00	2432.13	17924.88	17924.88	4.82	4.55	3.90
1985	4691.25	2393.34	5173.52	3460.00	2485.95	18204.06	18204.06	4.66	4.39	3.82
1986	4787.98	2399.00	5329.71	3300.00	2538.40	18355.16	18355.16	4.67	4.40	3.83
1987	4819.34	2378.34	5436.64	3100.00	2562.24	18296.55	18296.55	4.83	4.56	3.99
1988	4762.39	2320.31	5424.04	3000.00	2536.37	18043.10	18043.10	5.10	4.91	4.34
1989	4684.42	2249.92	5298.65	2900.00	2480.05	17613.04	17613.04	5.60	5.33	4.76
1990	4658.18	2194.64	5162.77	2800.00	2436.76	17252.36	17252.36	5.93	5.66	5.09
1991	4739.06	2181.85	5117.54	2700.00	2441.56	17180.01	17180.01	5.97	5.70	5.13
1992	4862.24	2182.97	5162.01	2600.00	2475.63	17282.86	17282.86	5.93	5.66	5.09
1993	4955.36	2175.39	5281.76	2500.00	2517.26	17429.78	17429.78	5.98	5.71	5.14
1994	5029.04	2161.75	5398.70	2400.00	2553.15	17542.64	17542.64	6.00	5.81	5.24
1995	5084.46	2142.32	5496.24	2300.00	2580.23	17603.25	17603.25	6.23	5.96	5.39
1996	5172.02	2133.06	5646.37	2200.00	2626.55	17778.00	17778.00	6.33	6.06	5.49
1997	5242.78	2118.88	5786.22	2100.00	2666.39	17914.27	17914.27	6.47	6.20	5.63
1998	5294.52	2099.16	5897.15	2000.00	2695.38	17986.21	17986.21	6.66	6.39	5.82
1999	5323.38	2072.58	5989.08	2000.00	2714.49	18099.54	18099.54	6.92	6.65	6.00
2000	5350.14	2044.96	6056.62	2000.00	2728.01	18179.74	18179.74	7.19	6.92	6.35

AVERAGE ANNUAL RATES OF GROWTH

1981-1985	.24%	-.88%	-6.04%	-1.54%	-2.85%	-2.61%	-2.61%	2.73%	2.91%	3.38%
1985-1990	-.14%	-1.72%	-.04%	-4.14%	-.40%	-1.07%	-1.07%	4.92%	5.19%	5.88%
1990-1995	1.77%	-.48%	1.26%	-3.86%	1.15%	.40%	.40%	1.01%	1.05%	1.17%
1995-2000	1.02%	-.93%	1.96%	-2.76%	1.12%	.65%	.65%	2.89%	3.01%	3.31%
1981-2000	.75%	-1.01%	-.48%	-3.16%	-.12%	-.56%	-.56%	2.88%	3.04%	3.43%

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GAS SUPPLY MODEL: NATIONAL CASE - ADDABBO-HEINZ - ACCELERATED IMPORT EXPANSION          THU, MAY  5, 1983, 12:14 PM


                                                  SUPPLY ANALYSIS
                                                  ---------------

         --FIXED SUPPLIES-- --MARKET SUPPLIES--  ---FIXED PRICES--- ---MARKET PRICES---                 MAXIMUM  LOWER 48
                   SUPPLE-                                  SUPPLE-                          TOTAL   DELIVER-  UTILIZA-
   YEAR  LOWER 48    MENTS  LOWER 48    IMPORTS  LOWER 48     MENTS  LOWER 48    IMPORTS  LOWER 48    ABILITY      TION
 ------  --------  -------  --------   --------  --------  --------  --------   --------  --------  ------- -  --------
         ---------------( BCF )---------------   ------------( $1981/MMBTU )-----------   ( BCF )    ( BCF )     ( % )
                                                                                                           (AS OF 1/1)
   1981  18196.00   176.00    960.00     904.00      1.77      5.20      4.86       4.94  19156.00   22000.00     87.07
   1982  18110.00   300.00    686.40     917.12      2.40      5.20      4.93       5.01  18796.40   21500.94     89.06
   1983  17045.00   700.00    900.84     833.74      2.50      5.20      4.48       4.56  17945.84   21161.28     80.12
   1984   7194.00   700.00   9412.46     618.42      1.61      5.20      3.32       3.30  16606.46   20981.35     79.43
   1985   6392.00   700.00  10565.27     546.79      1.61      5.20      2.94       2.99  16957.27   20371.67     82.73
   1986   5698.00   700.00  11155.13     802.03      1.61      5.20      2.87       2.92  16853.13   19645.75     86.44
   1987   5113.00   700.00  11632.61     850.94      1.61      5.20      3.05       3.10  16745.61   18766.43     89.87
   1988   4593.00   700.00  11775.32     974.77      1.61      5.20      3.49       3.55  16368.32   17918.88     92.25
   1989   4015.00   700.00  11402.69    1735.90      1.61      5.20      3.73       3.79  15417.69   17431.82     87.17
   1990   3470.00   700.00  11725.08    1820.58      1.61      5.20      3.92       3.90  15195.08   17188.33     89.14
   1991   2984.00   750.00  12070.34    1835.67      1.61      6.10      3.95       4.01  15054.34   17124.78     88.65
   1992   2566.00   750.00  12548.26    1827.32      1.61      6.10      3.93       3.99  15114.26   17132.33     87.76
   1993   2207.00   750.00  12869.96    1883.30      1.61      6.10      4.05       4.12  15076.96   17145.80     88.96
   1994   1898.00   750.00  13158.04    1934.21      1.61      6.10      4.16       4.23  15056.04   17146.96     88.86
   1995   1632.00   750.00  13408.97    1988.23      1.61      6.10      4.20       4.35  15040.97   17130.53     88.94
   1996   1404.00   750.00  13617.28    2045.90      1.61      7.05      4.40       4.47  15021.28   17108.60     88.99
   1997   1207.00   750.00  13807.60    2112.78      1.61      7.05      4.54       4.62  15014.60   17091.04     89.24
   1998   1038.00   750.00  13962.22    2184.90      1.61      7.05      4.70       4.78  15000.22   17076.97     89.31
   1999    892.00   750.00  14134.51    2287.09      1.61      7.05      4.92       5.00  15026.51   17061.23     90.11
   2000    768.00   750.00  14249.36    2399.84      1.61      7.05      5.16       5.25  15017.36   17052.76     90.14
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IMPACT ON NATURAL GAS PRICES AND ANNUAL REQUIREMENTS OF PROPOSED LEGISLATION: A COMPARATIVE ANALYSIS

VOLUME II

Prepared by

National Economic Research Associates, Inc.

for the

Analytical Capability Task Force

Associated Gas Distributors

May 1983

n/e/r/a
NATIONAL ECONOMIC RESEARCH ASSOCIATES, INC.
CONSULTING ECONOMISTS

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A MARSH & McLENNAN COMPANY
WHITE PLAINS, NY • WASHINGTON • LOS ANGELES • PALM BEACH • ITHACA, NY • LONDON

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ATTACHMENT E

NERA'S ENERGY MODELING SYSTEM

The following five sections describe NERA's integrated energy modeling system. The five NERA models are (1) Natural Gas Supply Model (NERAGAS), (2) Natural Gas and Electricity Demand Forecasting Model (NERAGEM), (3) Electricity Supply Optimization Model (NESOM), (4) World Oil Model (NERAWOM) and (5) Regional Electricity Price Forecasting Model (ZEPHYR).

NERA's Natural Gas Supply Model (NERAGAS)

The NERAGAS natural gas modeling system combines a production model for the Lower 48 states natural gas industry with NERA's econometric demand forecasting model, NERAGEM. Inputs to the system include competing fuel prices (culled from NERA's energy modeling systems described below) and measures of a changing demographic and economic environment.

The supply of natural gas to the Lower 48 states is modeled to comprise four categories of gas production: (1) Lower 48 supplies subject to regulated prices, (2) Lower 48 supplies determined by a deregulated market-price system, (3) imported supplies subject to market forces and (4) supplemental supplies at fixed quantities and prices.

Given prices of natural gas and competing fuels and a changing economic climate, the NERAGEM demand forecasting model forecasts total consumption of gas by several end-use customer class submodels. Electric utility demand for natural gas is determined by NESOM, NERA's electricity supply optimization model. Other demand for natural gas as well as field use and losses are determined as functions of total demand for gas.

The system begins on the supply side by determining the total productive capacity of the Lower 48 gas industry. Maximum deliverability of natural gas in each of the forecast years is a function of (1) proven Lower 48 reserves, (2) the depletion rate of those reserves and (3) changes in the market-determined price of natural gas upon which drilling decisions are made. Drilling potential is degraded over time while reaction to price changes is weighted by the ability of the industry to react in the long and short term.

Given maximum Lower 48 deliverability of natural gas, capacity utilization is defined as the proportion of capacity in production as of January 1st of each forecast year. This capacity utilization percentage or price-pressure index determines the initial production schedule for the industry.

Each producer anticipates prices changing along a price reaction function illustrated in Figure E-1. As utilization of available production decreases, prices are perceived to decline at an increasing rate. Likewise, as utilization approaches 100 percent of available productive capacity, prices are perceived to increase at an increasing rate. The capacity utilization value yields an anticipated price change which, in turn, yields an initial production schedule for the coming year.

Total Lower 48 production is thus determined as a function of available productive capacity and changes in the market price. Total Lower 48 production is then allocated between regulated and deregulated production.

Turning to imported supplies, the price of imported gas tracks the market price of Lower 48 supplies but at a higher transmission margin. Imported supplies react to the changes in those prices and to a variable which reflects the production policies of exporting countries. Supplements to the system are determined exogenously.

Total cost and supplies of each of the four categories of natural gas determine the supply-weighted average acquisition price of natural gas. An average transmission margin determines the city-gate price. Average distribution margins determine prices for residential, commercial and industrial customers. These customer-class prices are then fed into NERAGEM, NERA's demand forecasting model for the first go-around of supply-demand interaction.

Once demand has been estimated the model determines if the current level of prices has cleared all markets. Imbalances between supply and demand are reconciled by iterating between the supply and demand models until an equilibrium price is reached. Maximum deliverability is adjusted for any over- or under-production that may have occurred. The model then proceeds to the next forecast period.

The model produces three tables: (1) Supply Analysis; (2) Price Analysis; and (3) Annual Sales, Supply and Demand of Gas. Summaries of the input data are also available for documenting purposes. The three tables are described below.

The Supply Analysis table lists the four categories of supply and their prices. Fixed supplies of both Lower 48 production and supplements are user supplied. However, Lower 48 fixed production can be reduced should an extreme disequilibrium condition occur. Market supplies of natural gas lists those quantities of domestic and imported gas which would be produced and demanded under the conditions of the model. Fixed prices of Lower 48 natural gas are user supplied as are the prices of supplements of fixed quantities. Market prices of domestic and imported natural gas as determined by the interaction of the supply and demand models are reported. The sum of regulated and deregulated production by the Lower 48 natural gas industry is listed followed by maximum deliverability or the total productive capacity of the Lower 48 natural gas industry. Finally, Lower 48 utilization is the price-pressure index upon which initial production decisions are made.

The Price Analysis table lists each component of the average price faced by each customer class. Average acquisition price is the average wellhead price weighted by each of the four categories of natural gas supplies. The sum of the average acquisition price and an average transmission cost determines the city-gate price. Distribution margins are given for each of the customer classes which, when added to the city-gate price, determine the average price for end users of natural gas. Finally, a reconciliation of supply and demand is given with imbalances shown for years prior to deregulation of the price of natural gas.

The Annual Sales, Supply and Price of Gas table breaks down consumption by residential, commercial and industrial customer classes as determined by NERAGEM. The assumed quantity of natural gas consumed by electric utilities is listed and is determined exogenously to the model. "All Other" demand is comprised of (1) other nonspecified manufacturing demand for gas, (2) other nonclassified demands for natural gas and (3) field use and losses determined as a fraction of total, net of electric utility demand. Total demand and supply are listed again as are average prices by customer class.

NERA's Natural Gas and Electricity Demand Forecasting Model (NERAGEM)

NERAGEM is an econometric-based demand model disaggregated by major energy consuming sectors. The residential, commercial and industrial sector components of NERA's updated and refined demand forecasting methodology are described in detail in the NERA report entitled, "Quantitative Studies of the

Demand for Energy by Customer Class." A brief description of NERA's methodology and data sources follows.

The residential sector forecasts are based on several interrelated submodels, each of which focuses on a different aspect of residential energy demand. Submodels consist of saturation models for each of the major household electric- and gas-fired appliances for which competitive fuels are available (space and water heaters, cooking ranges and clothes dryers), and a model that determines the usage of remaining electric appliances. Electric appliance saturations are determined subsequent to the determination of the saturations of the competing gas appliances. A distinction between the behavior of households residing in new and existing structures is a further salient feature of the appliance saturation submodels.

As inputs into the residential sector models, forecasts of growth rates of population, households and income per household were derived from current Bureau of Economic Analysis national projections. NERA used its own forecast of growth rates for all fuel prices.

Electricity and gas demand by the commercial sector was forecasted on the basis of a behaviorial relationship estimated using pooled cross-sectional data for the contiguous 48 states. The electricity and gas use coefficients, which are defined as commercial sector consumption of the respective fuels per dollar of real income earned in that sector, are modeled as a function of the prices of electricity and gas and a composite of alternative fuels, total nonmanufacturing income, the composition of commercial activity and a number of regional characteristics. Electricity and gas use coefficients were computed for each year of the forecast period. Commercial sector electricity demand is computed as a product of the electricity or gas use coefficient and the projected

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GAS SUPPLY MODEL: NATIONAL CASE - ADDABBO-HEINZ - ACCELERATED IMPORT EXPANSION             THU, MAY  5, 1983, 12:14 PM


                                                        PRICE ANALYSIS
                                                        --------------

             AVERAGE    TRANS-                ----DISTRIBUTION MARGINS----   -------AVERAGE PRICES-------
         ACQUISITION   MISSION  CITYGATE  RESIDEN-   COMMER-    INDUS-   RESIDEN-   COMMER-    INDUS-
     YEAR      PRICE      COST     PRICE      TIAL      CIAL     TRIAL       TIAL      CIAL     TRIAL     SUPPLY     DEMAND
 --------   --------  --------  --------  --------  --------  --------   --------  --------  --------   --------   --------
            ------------------------------( $1981/MMBTU )--------------------------------------------   -----( BCF )-----

     1981       2.09       .80      2.89      1.30      1.03       .46       4.19      3.92      3.35   20236.00   20235.53
     1982       2.65       .80      3.45      1.30      1.03       .46       4.75      4.48      3.91   20013.52   18128.49
     1983       2.78       .80      3.58      1.30      1.03       .46       4.88      4.61      4.04   19479.56   17927.63
     1984       2.72       .80      3.52      1.30      1.03       .46       4.82      4.55      3.98   17924.88   17924.88
     1985       2.56       .80      3.36      1.30      1.03       .46       4.66      4.39      3.82   18204.06   18204.06
     1986       2.57       .80      3.37      1.30      1.03       .46       4.67      4.40      3.83   18355.16   18355.16
     1987       2.73       .80      3.53      1.30      1.03       .46       4.83      4.56      3.99   18296.55   18296.55
     1988       3.08       .80      3.88      1.30      1.03       .46       5.18      4.91      4.34   18043.10   18043.10
     1989       3.32       .80      4.12      1.30      1.03       .46       5.42      5.15      4.58   17853.59   17853.59
     1990       3.52       .80      4.32      1.30      1.03       .46       5.62      5.35      4.78   17715.66   17715.66
     1991       3.65       .80      4.45      1.30      1.03       .46       5.75      5.48      4.91   17640.01   17640.01
     1992       3.69       .80      4.49      1.30      1.03       .46       5.79      5.52      4.95   17691.58   17691.58
     1993       3.84       .80      4.64      1.30      1.03       .46       5.94      5.67      5.10   17710.25   17710.25
     1994       3.98       .80      4.78      1.30      1.03       .46       6.08      5.81      5.24   17741.05   17741.05
     1995       4.12       .80      4.92      1.30      1.03       .46       6.22      5.95      5.38   17779.20   17779.20
     1996       4.30       .80      5.10      1.30      1.03       .46       6.40      6.13      5.56   17817.18   17817.18
     1997       4.46       .80      5.26      1.30      1.03       .46       6.56      6.29      5.72   17877.38   17877.38
     1998       4.63       .80      5.43      1.30      1.03       .46       6.73      6.46      5.89   17935.13   17935.13
     1999       4.85       .80      5.65      1.30      1.03       .46       6.95      6.68      6.11   18063.60   18063.60
     2000       5.10       .80      5.90      1.30      1.03       .46       7.20      6.93      6.36   18167.19   18167.19
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GAS DEMAND MODEL: NATIONAL CASE - ADDABBO-HEINZ - ACCELERATED IMPORT EXPANSION THU, MAY 5. 1983, 12:15 PM

ANNUAL SALES, SUPPLY AND PRICE OF GAS

	GAS SALES							AVERAGE GAS PRICE		
YEAR	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	ELECTRIC UTILITY INDUSTRY	ALL OTHER	DEMAND	SUPPLY	RESIDENTIAL	COMMERCIAL	INDUSTRIAL
	(BCF)					(BCF)	(BCF)	($ / MMBTU)		
1981	4645.58	2479.52	6638.23	3681.00	2791.20	20235.53	20236.00	4.19	3.92	3.35
1982	4393.53	2383.39	5551.39	3300.00	2500.10	18128.49	20013.52	4.75	4.48	3.91
1983	4387.42	2356.21	5251.40	3500.00	2432.59	17927.63	19479.50	4.88	4.61	4.04
1984	4503.29	2361.25	5120.21	3500.00	2432.13	17924.80	17924.80	4.82	4.55	3.98
1985	4691.25	2393.34	5173.52	3460.00	2485.95	18204.06	18204.06	4.66	4.39	3.82
1986	4787.98	2399.08	5329.71	3300.00	2538.40	18355.16	18355.16	4.67	4.40	3.83
1987	4819.34	2378.34	5436.64	3100.00	2562.24	18296.55	18296.55	4.83	4.56	3.99
1988	4762.39	2320.31	5424.04	3000.00	2536.37	18043.10	18043.10	5.10	4.91	4.34
1989	4767.70	2280.57	5383.96	2900.00	2521.27	17853.59	17853.59	5.42	5.15	4.58
1990	4798.55	2247.10	5355.05	2800.00	2514.88	17715.66	17715.66	5.62	5.35	4.78
1991	4848.27	2225.77	5346.99	2700.00	2518.98	17640.01	17640.01	5.75	5.48	4.91
1992	4942.90	2218.96	5385.17	2600.00	2544.54	17691.50	17691.50	5.79	5.52	4.95
1993	4993.50	2197.80	5454.40	2500.00	2564.55	17710.25	17710.25	5.94	5.67	5.10
1994	5054.31	2179.27	5520.86	2400.00	2586.60	17741.05	17741.05	6.00	5.81	5.24
1995	5117.89	2161.39	5590.03	2300.00	2609.90	17779.20	17779.20	6.22	5.95	5.38
1996	5165.80	2139.13	5679.09	2200.00	2633.16	17817.10	17817.10	6.40	6.13	5.56
1997	5227.70	2120.77	5768.66	2100.00	2660.17	17877.38	17877.38	6.56	6.29	5.72
1998	5289.43	2102.49	5856.44	2000.00	2686.77	17935.13	17935.13	6.73	6.46	5.89
1999	5330.61	2078.43	5946.13	2000.00	2708.43	18063.60	18063.60	6.95	6.68	6.11
2000	5366.45	2052.72	6022.13	2000.00	2725.90	18167.19	18167.19	7.20	6.93	6.36

AVERAGE ANNUAL RATES OF GROWTH

1981-1985	.24%	-.88%	-6.04%	-1.54%	-2.85%	-2.61%	-2.61%	2.73%	2.91%	3.38%
1985-1990	.45%	-1.25%	.69%	-4.14%	.23%	-.54%	-.54%	3.80%	4.01%	4.56%
1990-1995	1.30%	-.78%	.86%	-3.86%	.74%	.07%	.07%	2.03%	2.13%	2.38%
1995-2000	.95%	-1.03%	1.50%	-2.76%	.87%	.43%	.43%	2.98%	3.11%	3.42%
1981-2000	.76%	-.99%	-.51%	-3.16%	-.12%	-.57%	-.57%	2.89%	3.05%	3.43%

level of commercial sector income. As previously noted, fuel price forecasts are derived from NERA models while governmental sources are used for economic and demographic projections.

In forecasting the electricity and gas demand of the industrial sector, each of the following 13 manufacturing industry groups and a miscellaneous manufacturing group are treated separately: food, textiles, lumber, paper, chemicals, petroleum and rubber, stone, clay and glass, primary metals, fabricated metals, machinery, electrical machinery and transportation equipment. Electricity and gas sales to each of these 13 industrial groups are decomposed into the product of the electricity or gas input coefficient (quantity of electricity or gas demanded per dollar value added) and value added by that industrial group. The value of the electricity or gas input coefficient is determined by the technologies employed within each industrial group and plant capacity utilization rates.

For forecasting purposes, adjustments to the energy input coefficients over time are dependent upon changes in the prices of alternative fuels and the average wage rate of that industry group. The econometric demand models upon which this behaviorial relationship is based include a number of explanatory variables in addition to the fuel prices and wage rate variables. The units of observation for the econometric estimation are pooled cross-sectional data for the 48 contiguous states.

NERA's Electricity Supply Optimization Model (NESOM)

NESOM is a large linear programming model which projects electricity supply variables such as capacity expansion, mix and amount of fuels, future generating costs and so forth. Its primary purpose in this context was to forecast natural gas consumption by electric utilities.

NESOM was designed to estimate the effects of a wide variety of energy and environmental policies on the operation of the electric utility industry. It can be used to evaluate: (1) fuel taxes, such as state severance taxes and oil and gas taxes; (2) environmental policies, including limits on emissions of particular pollutants, specific technology requirements and pollution taxes; (3) restrictions on fuel supply such as those imposed on leasing federal land, limits on strip mining and constraints on utility oil and gas usage; (4) mandatory conversion of oil and gas steam plants to coal; (5) coal transport policies, such as those that affect the cost for particular modes of shipment, the use of new technologies, and the quantities that can be shipped; (6) economics of new technology such as coal gasification and fluidized bed combustion; (7) national and regional limits on capital expenditures; and (8) constraints on the use of specific technologies.

NERA's World Oil Model (NERAWOM)

NERAWOM is an annual simulation model that considers three basic forces that determine World Outside Communist Areas (WOCA) supply, demand and prices: (1) OPEC producers, (2) consumers and (3) non-OPEC producers.

The overall market structure considered by the oil market simulation model assumes that OPEC sets an oil price[1] at the beginning of the year. Faced with this price, WOCA consumers, in the course of the year, decide on how much oil to consume at that price, while non-OPEC oil producers make their production choice based on the same price. OPEC producers are assumed to serve as the balancing force, supplying the excess demand at the price that was set by them at the beginning of the year.[2] By year's end, OPEC countries compare the amount of oil they had to produce to clear the market with their productive capacity that year. Next year's price is then determined so as to achieve an assumed behavioral objective of the core OPEC countries. This new price is then fed back into the corresponding demand and supply functions and the cycle continues out to the target year of the simulation, which is set to be the year 2000 (1981 is the base year, and 1982 is the first year simulated).

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[1] A note on the meaning of the world oil price may be due as some ambiguity may exist. A distinction must be made between OPEC contract prices and spot market prices. As our model considers an OPEC-determined price rather than a market-clearing price, it seems that the model's price

The OPEC countries (or more accurately, the core OPEC countries of Saudi Arabia, United Arab Emirates (UAE), Kuwait, Bahrain and the Neutral Zone, which are price leaders while the other OPEC members are price takers) are assumed to have a target level of capacity utilization. OPEC is assumed to set its price so that demand for its oil will be as close as possible to the desired degree of capacity utilization. Thus, in any given year, OPEC observes its capacity utilization and sets next year's price higher or lower in accordance with the desired degree of capacity utilization and the implied need to reduce

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[1] -continued-

projection may best be understood if they were interpreted as OPEC long-term contract prices. Our model will not reflect short-term market fluctuation.

[2] This model clearly assumes no price fluctuations in the course of the year.

increase its production in the following year, respectively.[3] This price adjustment is performed by a price reaction curve that is specified in the model.

The price that is determined through OPEC's price reaction function feeds into a single WOCA oil demand function in which an inverse relation with the real oil price is assumed. The consumers' response to oil price change is measured explicitly in the model by the long-term price elasticity which serves as a measure for both the shift away from oil to other energy sources, as well as to consuming other raw materials. The most fundamental characteristic of the demand function in this model is that the quantity demanded does not adjust instantaneously to changes in price. A time lag is assumed to reflect the fact that modifying or replacing the oil consuming capital stock takes time. This lag structure is modeled by adopting a Koyck lag formulation of the demand function. This approach allows us also to reflect the conservation impact on the level of oil consumption in any given year, brought about by higher oil prices in the past. The traditional Koyck lag structure is modified somewhat by considering explicitly the effect on the quantity demanded, at any given price, of changes in the level of economic activity. This is reflected in the equation by incorporating the anticipated WOCA GNP growth rate for every year that is simulated, the assumed income elasticity, and the cumulative effect of GNP growth rates in the past on current year's oil consumption.

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[3] OPEC may be considered either to set the world price for oil and then supply the amount demanded at that price or to set its production level and then sell at the market-clearing price. (These two are equivalent if OPEC knows the demand curve for its oil.) The important point is that the underlying decision process that yields any particular price or quantity, clearly varies. OPEC may be assumed to be a revenue or profit maximizer, to have a revenue target that it wishes to meet but not to exceed, or to operate, as we assumed, at a certain capacity utilization or a particular revenue-to-production ratio, or as the case may actually be, different OPEC members have different decision rules. Also any objective may be attained over time or on a year-by-year basis.

The current implementation of the model also reflects the impact on GNP growth rates of changes in oil prices. A fairly straightforward Energy-GNP feedback is incorporated into the model by using a rather commonly used concept of oil price elasticity of GNP growth in the demand function formulation.

For each year that is simulated, the price that is generated by OPEC's price reaction function also determines non-OPEC supply. Annual non-OPEC conventional crude production is determined by a single upward sloping supply function in which a Koyck lag structure is incorporated to reflect the impact of the historical price trajectory on current production rates. If, for example, real oil prices were rising in the past, current year's production should be higher because the higher prices provided incentive for producers to increase (1) oil field development activity which increases the sustainable productive capacity, as well as to increase (2) the level of exploratory drilling which leads to finding new reserves for future development. (This process is implicit in the current implementation of the model and may be explicitly modeled without great difficulty in future versions of the model.) Resource depletion is also explicitly accounted for in the non-OPEC supply curve as it brings about a decline in the physical quantity available at any given price in any given year (or an increase in price at any given quantity, i.e., a shift upward of the supply curve). The cumulative effects of depletion are also represented in the formulation to ensure that when price stabilizes and new reserves are added, non-OPEC oil supply will still decrease at the depletion rate.

Finally, added to non-OPEC supply of conventional oil are supplies available from a backstop technology. It is assumed that a perfect substitute to conventional crude will be available at a user-specified time in the future and at a user-specified threshold price. The specific rule that was incorporated into the model suggests that if the oil price exceeds the threshold price at a future point of time which is on or after the date that the technology is available, backstop productive capacity will increase according to a simple schedule. If the price drops below the threshold price, backstop production will occur at a rate that equals the available capacity at that time, while no new capacity will be added as long as the price is below the threshold price.

Non-OPEC oil supply, as projected by its supply function, is subtracted from WOCA demand, as projected by the WOCA demand curve. The balance is modeled to be supplied by OPEC, which at the end of each year compares the amount it actually supplied to the amount it wishes to supply so as to produce at its target, which is assumed to be 80 percent of its productive capacity in any given year.[4] Based on the price reaction curve, the price increases or decreases in the following year depending on whether last year's production exceeded or was below the target level, respectively. This process is repeated for each year that is simulated.

NERA's Regional Electricity Rate Forecasting Model (ZEPHYR)

ZEPHYR is a regional electricity rate forecasting model which projects rates by customer class--residential, commercial and industrial and other--for each of ten regions.[5] The model projects those rates that would emerge from meeting specified electricity sales by class. These sales projections are from the NERA electricity demand forecasting model. Since electricity demand depends on price, it was necessary to ensure that the prices forecasted by the rate model were consistent with those used in the demand model. This was done by making an initial demand forecast and using it to project prices. These prices were then used to develop new demand forecasts. This process was continued until the price projections were consistent with those used to project demand.

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[4] The model displays a possible allocation of OPEC's required production to the cartel members by distinguishing between three groups: (1) limited reserve producers that include all cartel members except for Iraq, Iran, Saudi Arabia, Kuwait and UAE; (2) Iraq and Iran; and (3) core OPEC members, which are assumed to be the price leaders within the cartel--Saudi Arabia, Kuwait and UAE, which have the financial muscle and technical capability to absorb large swings in the amount of crude they produce.

[5] The regions are those used by the Department of Energy.

In addition to the regional sales forecasts, the electricity rates depend on the following regional data:

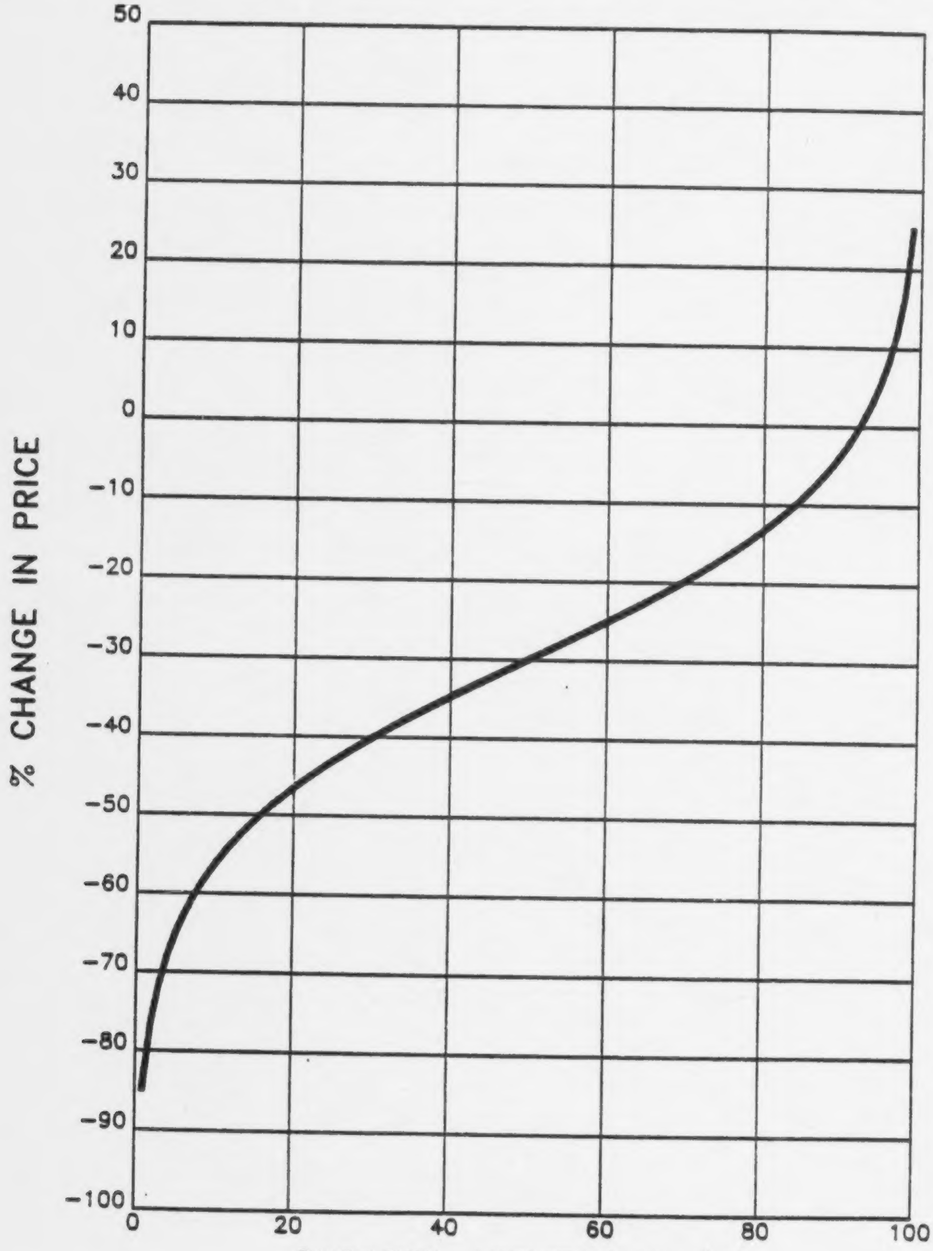
1. Initial balance sheet.
2. Existing mix of generating capacity by fuel type.
3. Generating capacity additions and capital costs by fuel type and year.
4. Generating capacity retirements by fuel type and year.
5. Plant operating characteristics by fuel type.
6. Fuel and nonfuel operating costs by plant type and year.
7. Additions to transmission, distribution and other plant and their capital costs by year.
8. Load factor.
9. Financial structure, cost of money and other financial data.

This model develops annual revenue requirements by region which are then converted to rates.

FIGURE E-1

GAS SUPPLY MODEL PRICE REACTION CURVE

THE % CHANGE IN PRICE IS A FUNCTION OF CAPACITY UTILIZATION



ATTACHMENT F

DETAILED LISTINGS OF DATA INPUTS AND ASSUMPTIONS

The following section is an insight to the data assumptions which drive NERA's natural gas supply and demand model. The material includes (1) an analysis of the outlook for world crude oil prices, (2) the assumptions used to determine natural gas consumption by electric utilities, (3) the NERAGEL "Run Ticket" listing of the assumptions used in the disaggregated state and regional natural gas demand forecast and (4) a complete listing of data inputs to the NERAGEL model.

(As a word of explanation, the NERAGEL model operates on the same principles as NERAGEM. However, while NERAGEM operates on aggregated national data inputs or on service-area specific data, NERAGEL uses disaggregated state and regional data to produce state, regional and national forecasts of natural gas consumption.)

ATTACHMENT F-1

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FUTURE OIL PRICES: THE IMPACT ON CANADIAN OIL AND GAS PRODUCERS

by

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Presented at the
Fourth Crossborder Seminar

Acquitaine Tower Auditorium
Calgary, Alberta
Canada
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FUTURE OIL PRICES: THE IMPACT ON CANADIAN OIL AND GAS PRODUCERS

I'm sure you will agree that these are interesting times for oil and gas producers. Only two years ago, it was virtually the unanimous view of those so-called experts who cared to express a public opinion (and many did) that oil prices were destined to rise forever--that whether or not OPEC was a cartel and had control over world markets, the pressure of rapidly rising world demand on a dwindling supply of remaining oil resources would lead to prices of $50, $75 or even $100 oil by the end of the century, if not earlier (Figure 1).

Now OPEC is in disarray and prices are falling. How could so many experts have been so wrong? For one thing, they assumed illogically that the enormous price increases would have no effect on demand—that conservation and substitution would be minor. For another, they accepted uncritically the contention that world oil resources were rapidly being depleted to exhaustion, ignoring the abundant evidence to the contrary.

In any event, there is no longer unanimity about the future of oil prices (Figure 2). According to one school of thought, there will be a price collapse, and within the next few months oil will be selling at $20 a barrel or even lower. OPEC, they argue, is finished. Another view is that economic recovery will prevent a complete market collapse but OPEC's ability to control the world market will henceforth be limited. Still another opinion—I guess you'd call this the "diehard" opinion—has it that OPEC is suffering only a temporary setback, and sooner or later we shall once again see a relentless upward ratcheting of oil prices. Renewed economic growth will supposedly guarantee this, and even if there is a price collapse it will only serve to strengthen the growth in oil demand and put OPEC back in control that much sooner.

The purpose of this talk is to give you my view at NERA of what the future course of oil prices is likely to be and to suggest some of the implications for Canadian oil and gas producers of that price behavior, as we see it. Whether you are in the oil or gas business, the analysis should be of interest to you, because the two hydrocarbons compete in the end-use markets for stationary fuels. I'm sure I need not remind you of the crucial role of resid and No. 2 oil prices in the future prospects for natural gas in U.S. markets (a point my colleague will emphasize in his presentation).

The crucial element, I believe, is the rate of growth in oil demand, for both the short and long term. Thus far the price decline in the world oil market has not developed into an intensifying spiral, but this can still happen. Current statistics suggest that the first stage in economic recovery may be underway. If this is correct, and if recovery becomes clearly apparent in the coming months, the probability of a collapse in oil prices will become progressively less. If economic recovery is very weak, however, it could be the trigger that causes such a collapse, as the strains on major world oil suppliers simply become too great to withstand.

The Near Term

Our judgment at this time is that the crisis point appears to be past. The Alphonse and Gaston act that the oil exporting countries went through before Britain finally took the momentous step of dropping its price by $3.00 a barrel is testimony to the desperate desire of all producers to avoid a price war. Given the slightest encouragement in the economic news, all oil exporting countries will strive to hang on and avoid a price war. As I say, economic recovery appears to have begun at last. This should make it possible for OPEC to maintain the price structure based on the Arabian Light marker crude, which I shall take for present purposes as $28 per barrel. I should emphasize, however, that uncertainty persists. It is still possible that some country—OPEC or non-OPEC—may find the pressure irresistible and initiate another round of price reductions.

Whether economic recovery will be weak or robust is itself a matter of some dispute. What is more certain is that the pace of future economic growth could lead to renewed increases in the real price of oil. In our opinion even a healthy recovery will not result in a rapid increase in oil demand, certainly not so rapid as to permit the prompt restoration of a price structure that would see the Saudi marker crude back at the $34 level the Saudis tried for so long to preserve.

Much of the effect of the oil price increases during the 1970s on demand is permanent. For example, automobile efficiency in the United States will never again fall back to what it was—indeed, as the turnover of the fleet in use continues, the average efficiency will continue to rise. Moreover, insulation and other energy-saving retrofits on existing housing and structures will certainly not be torn out, and all new construction will continue to have higher heating efficiency levels, in many instances mandated by law. Still further, unless gas producers price themselves out of the market, substitution away from oil by electric utilities and industry in general will not be reversed, and new industrial facilities built as recovery progresses will be even more energy efficient.

So whatever the pace of economic growth, the rate of increase in oil demand will be less. If growth is at, say, 4 percent (which would be fairly healthy), the increase in Free World oil demand would be more like 2 percent (Figure 3). Note what this means: As you can see from the chart, it would take a much higher growth rate than 2 percent (in fact, over 5 percent) to regain the consumption level of 1979 by 1990; yet to get this consumption growth, it would take an economic growth rate of something like 10 percent.

Obviously, any strengthening of demand will tend to strengthen price, but that price effect will be tempered by the circumstances on the supply side. To begin with, there is Saudi Arabia, which, having borne the brunt of the production cutbacks during the recent lean years, will wish to get back to its previous output level of 10 million barrels a day as quickly as possible. But other countries will also wish to take advantage of market strength—Nigeria, Venezuela, Indonesia, Libya and Mexico would all like to export more oil.

Thus, as economic recovery is completed and "normal" economic growth is resumed in the world, the most that is likely to happen to the oil price is a restoration of the loss in real price since 1981. Consider this: World oil production is down, but more important, current OPEC production is down 13 million barrels from its peak of 31 million barrels a day in 1977 (Figure 4). This means that world demand will have to increase by that much before there will be any pressure on OPEC capacity. Saudi Arabia could, of course, forgo increasing its production and thus speed up the rise in price. More likely, the Saudis will follow a middle course: they will not increase production as fast as demand grows, thus holding the price at the present level, but will increase production slowly, behind the rate of demand increase, thus permitting price to increase.

If economic recovery is complete within a few years, this would mean that the Saudi marker price of $34 is likely to be restored in the latter 1980s, perhaps as early as 1986 (Figure 5). Note, however, that I am talking about a current dollar price, not a price in real dollars. Inflation, it is safe to assume, will have continued in the meantime, so that when the $34 level is reattained, the price of marker crude will actually be lower than at present in real dollars. Thus, over that time period the price of oil in real dollars will fall from $16 to, say, $13 per barrel.

Once the $34 price is reattained, what happens thereafter? My judgment on this point is that the current price of oil will probably do no more than keep pace with inflation for the remainder of the century. Or, to put it in the same context as the previous statement, the price of oil will remain unchanged in real dollars.

Long-term Demand

My reasoning on long-term prospects is that world economic growth during the 1990s will not be at the booming pace of the early 1970s and that the rate of increase in oil demand will continue to be well below the rate of economic growth (Figure 6). Oil at $34 a barrel in current dollars will still be several times as expensive in real dollars as it was prior to the oil embargo (before this year's price cuts, it was about five times as expensive in real dollars as it was in 1972), hence the motivation for conservation and substitution will continue to exist in the industrialized countries. As for the Third World, even assuming Third World oil importers manage to avoid default on their enormous foreign debt during the 1980s, it is very unlikely they will be able to eliminate that burden by 1990. Thus during the 1990s they will still be suffering the hangover from their borrowing binge of the early 1980s. Reduction of the external debt requires financial austerity at home, which dampens (if not prevents) economic growth.

Long-term Supply

On the long-term oil supply side there is, first of all, Iran and Iraq, which I have not previously mentioned (Figure 7). It appears likely that their war will be resolved in one way or another by 1990. Whoever is the winner, or if the stalemate is recognized in a peace settlement, both countries will be eager to resume exporting to their full capacity. Under the Shah, Iran's output reached 5.7 million barrels a day, but its reported exports are now only about 2.1 million. Iraq previously produced 3.5 million barrels a day but is now down to 1.0 million. This means that resolution of the war could release some 6 million barrels a day of additional supply on the market; and both countries, if they wished, could expand capacity beyond the levels that existed prior to the Iranian revolution and the war. The geological potential for future reserve additions is good in both Iran and Iraq. Indeed, according to Exxon, Iraq's undiscovered potential ". . . is considered to be among the most promising in the Middle East."[1]

These 6 million barrels would be in addition to approximately 12 million barrels a day of excess capacity that currently exists in the rest of OPEC, which presumably would have been sopped up in the process of restoring the $34 marker price (i.e., increased production following increased supply).

Beyond this is the potential for increase in non-OPEC supply. The most important, because it is not only the largest but also the most certain (in the physical sense), is Mexico. On the basis of known reserves, Mexico's productive capacity could easily be increased from its present 3 million barrels a day to 10 million barrels. Domestic politics will probably prevent the adoption of any policy that would achieve that level, but I am confident that economic forces will inevitably lead to the creation of 3 to 5 million barrels a day of additional capacity. The need to increase capacity is, if anything, heightened by Mexico's current financial difficulties. Oil exports provide the best means of paying off the foreign debt and of creating the wealth that can raise the Mexican standard of living. Whether Mexico can avoid default on its foreign debt and domestic social upheaval in the near term is debatable, but if it can, Mexico will increase its oil production capacity, thus adding to long-term world oil supplies.

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[1] Exxon Corporation, Middle East Oil, Second Edition, September 1980, p. 10.

Next is Venezuela, which was beginning to start the exploitation of the Orinoco heavy oil in earnest when the price weakness in world oil markets developed. Like Mexico, Venezuela now finds itself with a nasty balance of payments problem and shortage of capital. Ambitious plans, which called for a heavy oil capacity of 1 million barrels a day in the 1990s, have been postponed; but again, assuming Venezuela surmounts its current financial problems, it will get back to the business of building up heavy oil capacity. And in yet another parallel with Mexico, oil is the long-term necessity for Venezuela's economic growth. Although the national oil companies have had some success in finding new reserves of conventional crude to hold off the decline in productive capacity, for the long term, Venezuela will be forced to rely on its heavy oil.

As you probably know, Venezuela has entered into programs of technical cooperation with both the U.S. and Canadian governments, and most recently has arranged for the refining of its heavy oil in Germany at an eventual level of 100,000 barrels a day. If the capital could be made available, there is no reason why Venezuela's original goal of 1 million barrels a day production could not be exceeded during the 1990s.

Finally, long-term prospects must take into account the frontier areas around the world—your own Arctic, the Alaskan North Slope and adjacent Beaufort offshore, the Point Arguello structures offshore California, the Hibernia and adjacent structures off Newfoundland, the northern extension of the North Sea play off Norway, the China Sea and the large areas of continental shelf throughout the world that remain wholly untouched. The supply potential of all of this is enough, in my view, to more than offset depletion in currently producing fields. In other words, my conclusion is that an oil price somewhere between $25 and $30 per barrel in 1983 dollars should be enough to call forth sufficient supply to meet modest world demand growth and thus forestall an oil price increase in real terms.

Long-term OPEC Policy

I believe OPEC policy will also support no increase in the real dollar price of oil during the remainder of the century. To any rational person, the OPEC price increase of 1979 was a serious blunder that worked against OPEC's own interests. That short-sighted action greatly intensified the response of both demand and supply and led to the market weakness with which OPEC has been grappling for the past several years—mainly by cutting OPEC production, of which the bulk was in Saudi output (Figure 8). The worldwide recession only magnified the problem, which would have existed in any event.

Over the past months the more reasonable policymakers in OPEC have come to recognize this fact and have publicly acknowledged it in increasing numbers. Most important, Sheikh Yamani has now stated that the long-term policy goal of his country is to maintain the real (i.e., the constant-dollar) price of oil. There is no longer any talk of raising oil prices faster than the rate of inflation. In this instance, what the Saudis want as OPEC policy they have the full power to impose on the other members. In contrast, the Saudis have not been able to impose their current policy of reducing the price because of the fear of triggering a price war. But to keep the price of oil from rising, all the Saudis have to do is to increase production. At one time during the 1970s their target for productive capacity was 12.5 million barrels a day; and if they wished, they could attain a capacity of 20 million barrels a day. So if the Saudis want to keep the oil price from increasing faster than inflation, they have the complete power to bring it about.

Let me recapitulate my argument at this point. I believe the recent oil price reduction will not snowball into an all-out price war, but that the slowness of economic recovery will prevent any firming of price during 1983. As recovery proceeds, the demand for oil will begin to grow; but this increase will also be slow. In response to this greater demand, OPEC countries will attempt to recapture their past revenue losses through increased production. At that point everything will depend on the actions of Saudi Arabia. If the other OPEC members show reasonable restraint in their production increases, either voluntarily or under threat of counteraction from Saudi Arabia, the Saudis will be content with increasing their own production by a smaller proportion than that of their co-members. In other words, the Saudis will continue to bear the brunt of reduced world demand in their own oil revenues until the $34 marker price is restored.

With economic recovery gaining momentum, the price of oil should continue to rise. This rise will persist, I believe, until the Saudi marker crude is once again at $34, at which point the Saudis will bring into play the full force of their unutilized capacity by increasing their own production to take care of any further demand growth that would tend to raise the price above $34. I think this point will be reached some time around 1986.

Note what this means for OPEC, however. Inflation will have continued in the meantime, so that a price of $34 in 1986 will actually be a lower real price than at present; and of course, even $34 today would be a lower real price than the $34 in 1981, when that price for the marker crude was first established. Obviously, I have a question to answer: Why would Saudi Arabia be willing to live with a lower real price?

I think they will accept a lower real price for oil because of the same rationale that is behind their long-term policy of no increase in the real price. As long as the real price does not rise, there is no intensification of consumers' motives to conserve on oil, to switch to other fuels or to invest in high-cost supplemental and unconventional energy sources such as shale oil. Consider what would be required if OPEC tried to catch up and restore the price of oil to a level of $34 in 1981 dollars (Figure 9). Remember, once that $34 level is reached, the OPEC strategy will be to continue to raise the price along with inflation. Let's assume that inflation from 1986 to 1990 is at 5 percent per year, so after the $34 level is reached, price will increase by approximately $1.85 a year (over a period of four years). By definition, everything else will be increasing in price on average by 5 percent a year, because that is what constitutes inflation.

To catch up in real terms, the oil price would have to increase by more than 5 percent per year. If the $34 were reached in 1986, under my assumption, there would be 16 percent of inflation to catch up with for the years 1983-1986. Let's suppose OPEC were to decide to catch up over five years, this would mean an additional 3 percent per year above inflation, or 8 percent all told. But this doesn't take into account the 18 percent real price loss between 1981 and 1983, which would have to be added on.

My point is, unless OPEC were willing to do its catchup very slowly, it would run the risk of restimulating the same economic forces of demand and supply that led to the difficulties it has been experiencing since 1979. I believe the Saudis think this risk and its consequences are great enough to justify forgetting about the real price loss. At most, after 1990 I would expect a real increase of 1 percent per year in oil prices after the $34 price is attained (Figure 10).

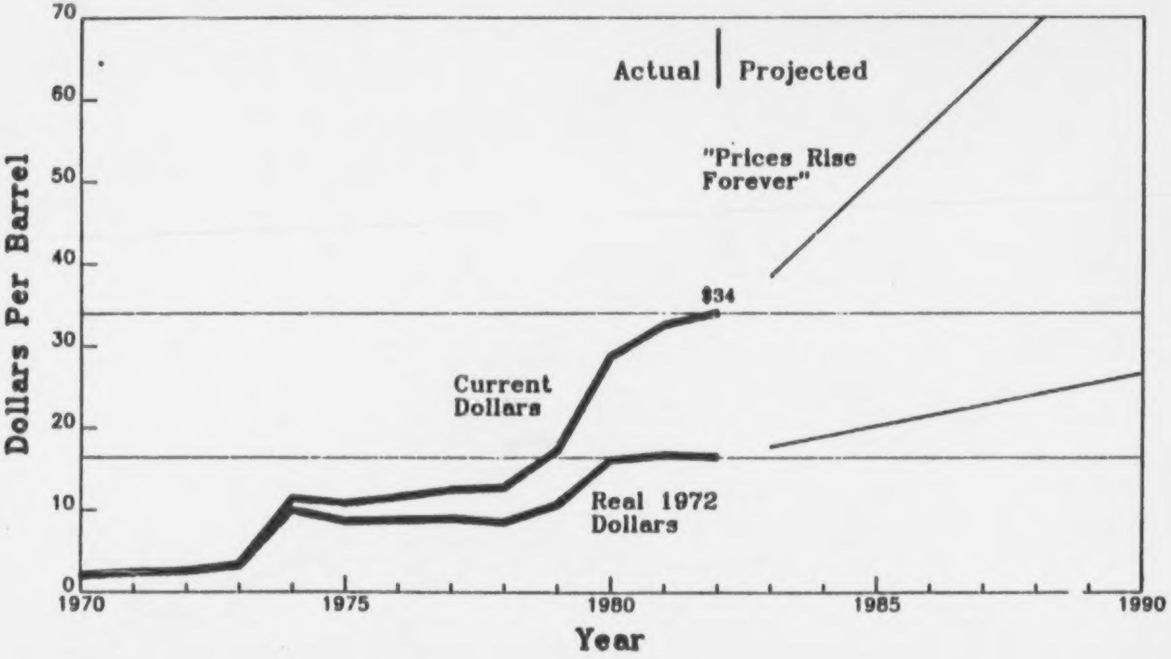
If I am right, the implications for you in the Canadian oil and gas industry are obvious. You cannot count on a higher real price of oil in the future in making your investment decisions. From what I know of heavy oil and tar sand economics, I do not think this price projection puts exploitation of these resources in jeopardy, as it does with shale oil, but it does place a limit—perhaps a tighter limit than you may have been assuming—on the extent to which these supplemental resources can be exploited. Nevertheless, it still leaves considerable room for further development.

My price outlook also has obvious implications for your gas exports. The absence of rising crude prices removes that stimulus to resid prices, and the current sharp resistance to higher gas prices in the upper Midwest gas market of the U.S. clearly requires something less than a $4.94 border price for your gas exports. The next speaker will discuss the gas outlook specifically, so I shall say no more on that subject.

Finally, such future oil price trends have important implications for Canadian government energy policy, both national and provincial. Much of that policy, certainly at the national level, has been premised on an indefinite continuation of rising real oil prices. You here in the West considered that policy to be wrong at the time it was adopted, but the current market situation and the future prospects for oil that I have just described now make it urgent that a redirection of Canadian energy policy be encouraged. This is essential if you are to adjust your business decisions to a real oil price that is flat over the long term.

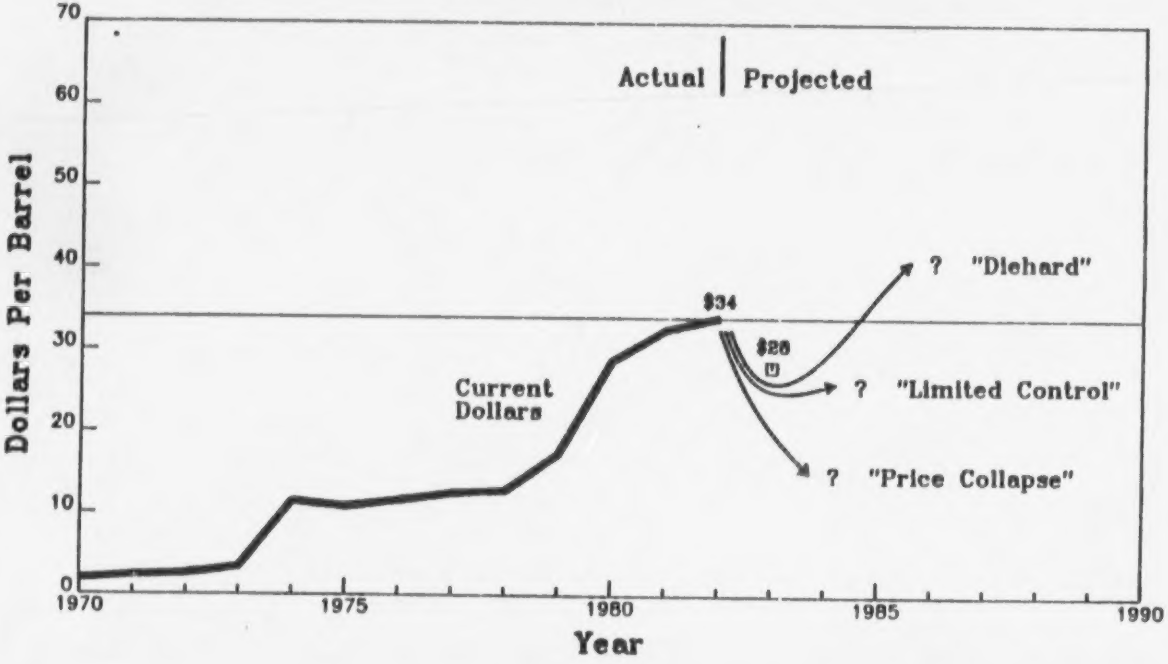
Crude Oil Price: Saudi Arabian Light

Actual: 1970–1982
Projected: 1983–1990, "Prices Rise Forever"

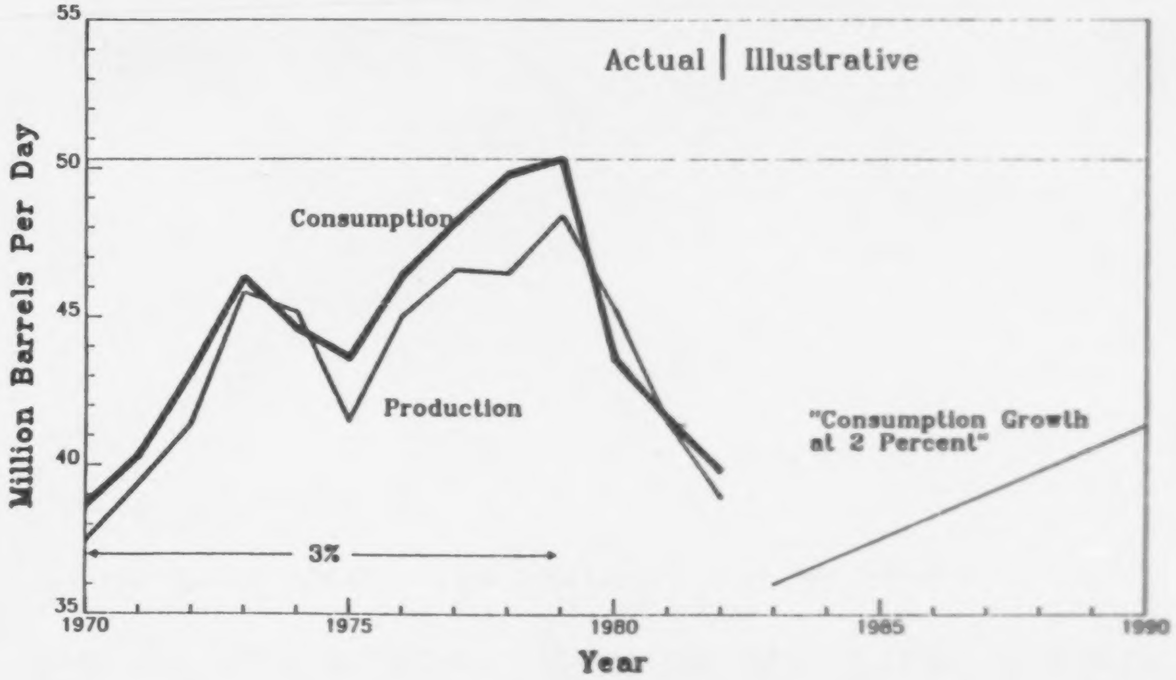


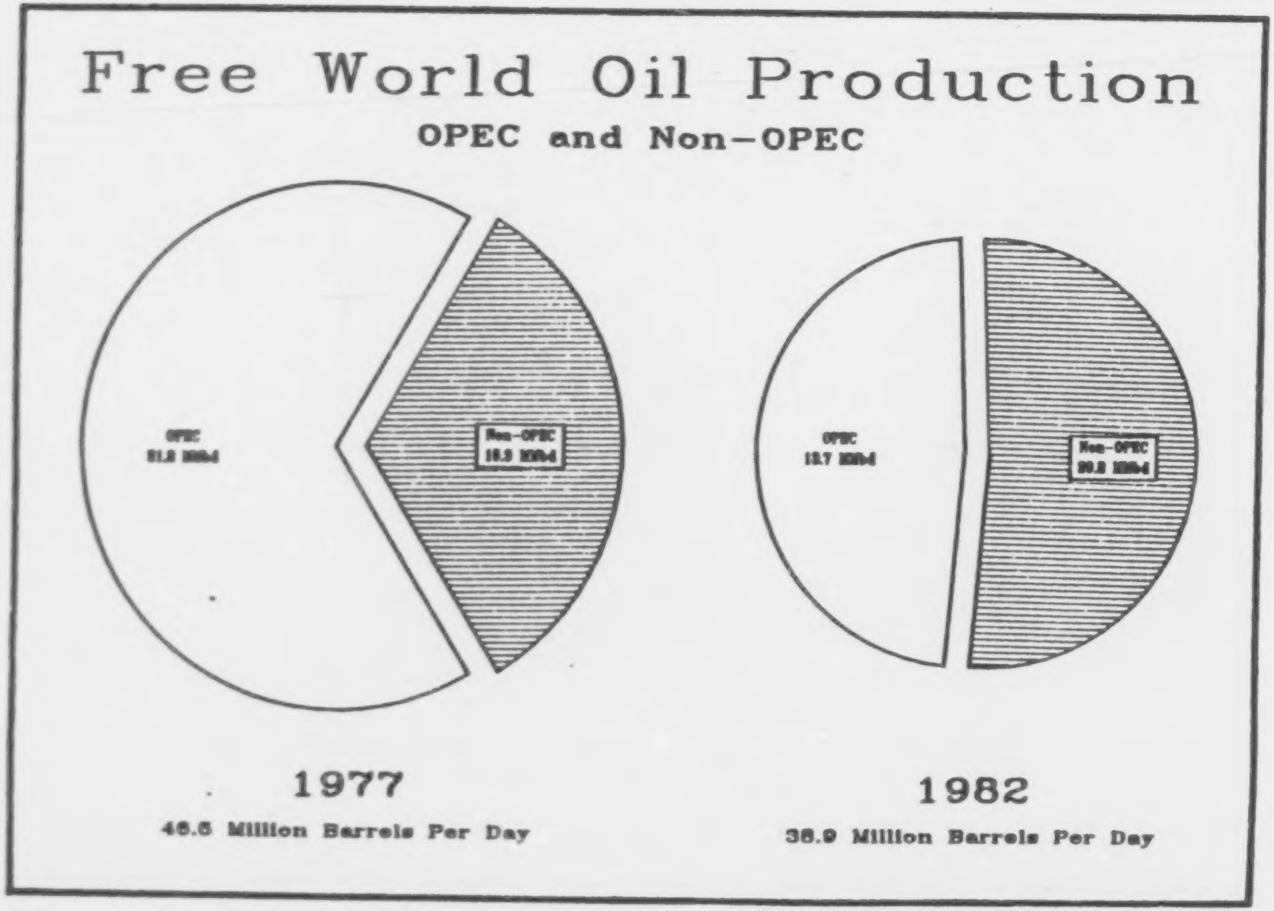
Crude Oil Price: Saudi Arabian Light

Actual: 1970–1982
Projected: 1983–1990, "Three Views"



Free World Crude Oil Consumption and Production
Actual: 1970–1982
1983–1990 Consumption at 2 Percent Growth Rate



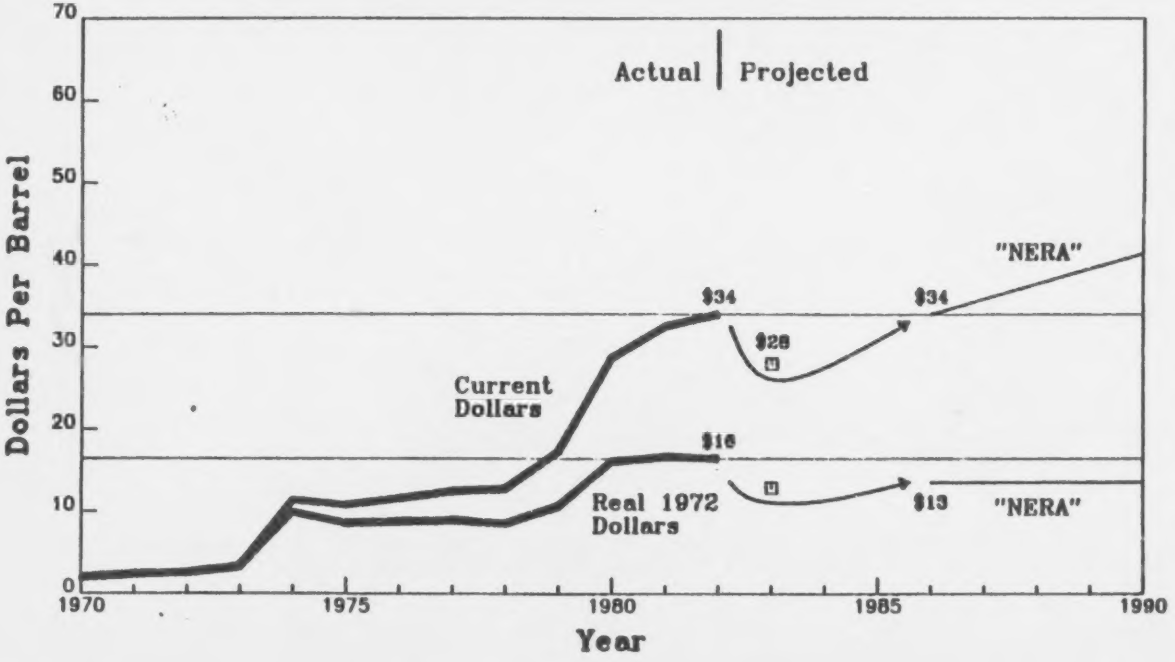


Free World Oil Production

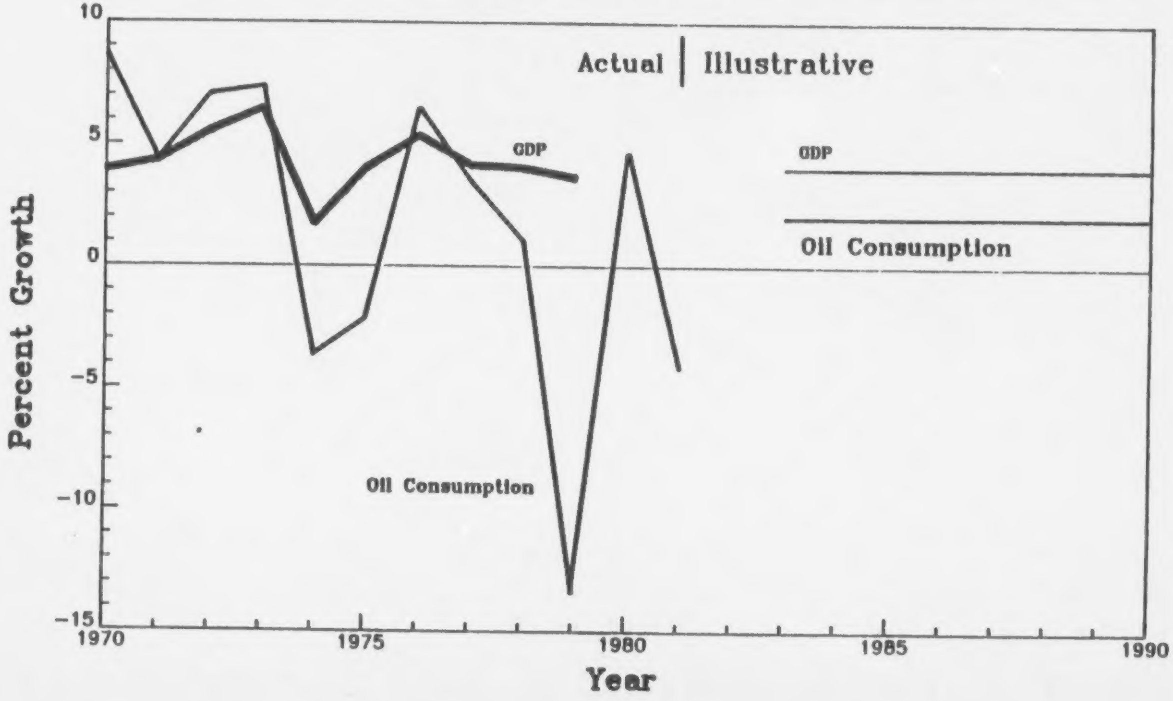
OPEC and Non-OPEC

Crude Oil Price: Saudi Arabian Light

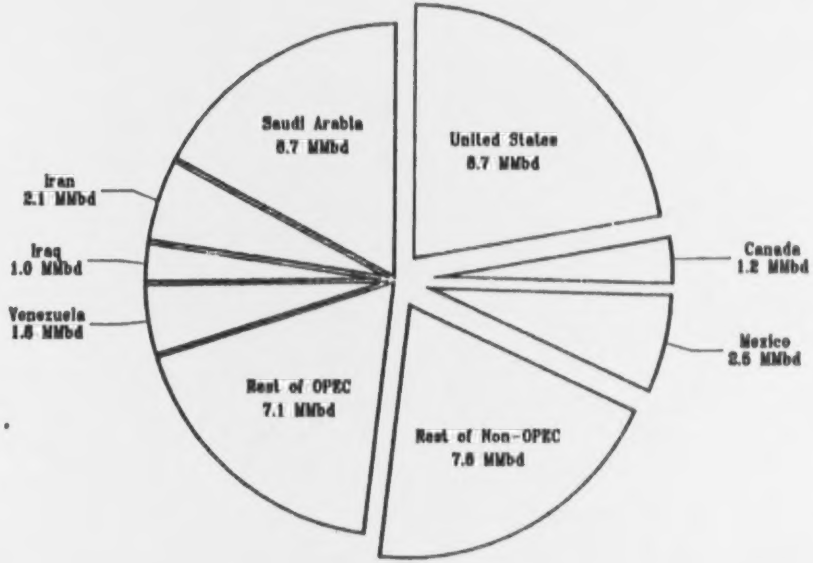
Actual: 1970–1982
Projected: 1983–1990, "NERA"



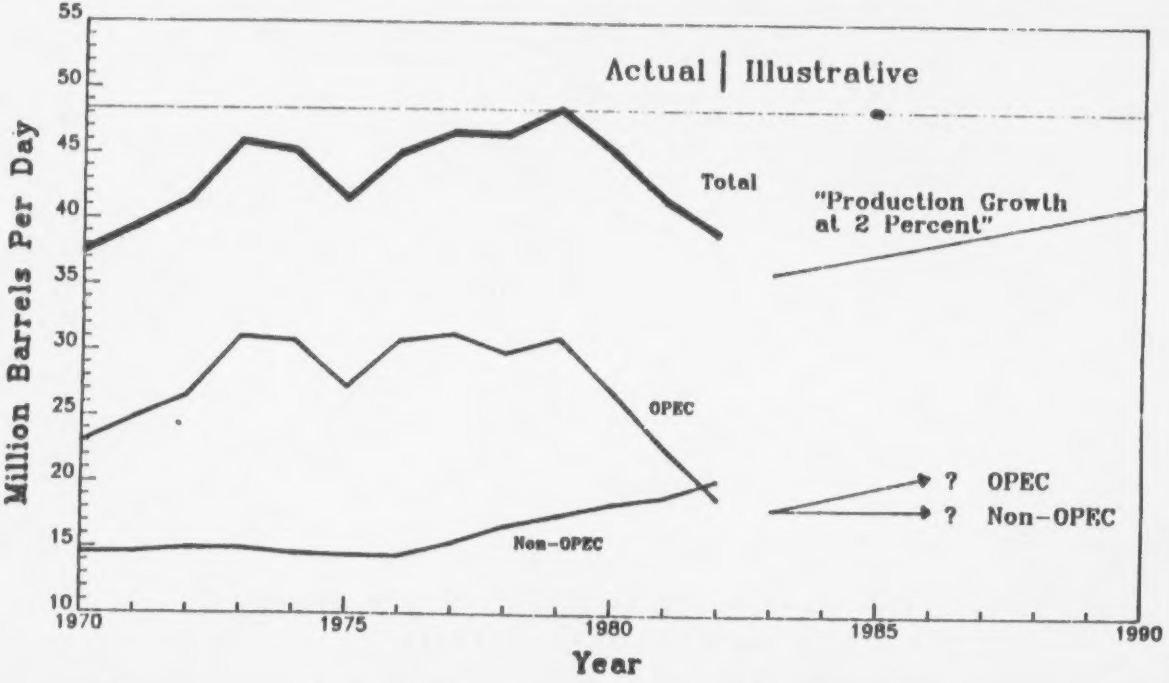
Free World Gross Domestic Product and Oil Consumption
Actual: 1970–1981
Illustrative: 1983–1990, 4 Percent GDP Growth



Free World Oil Production Shares



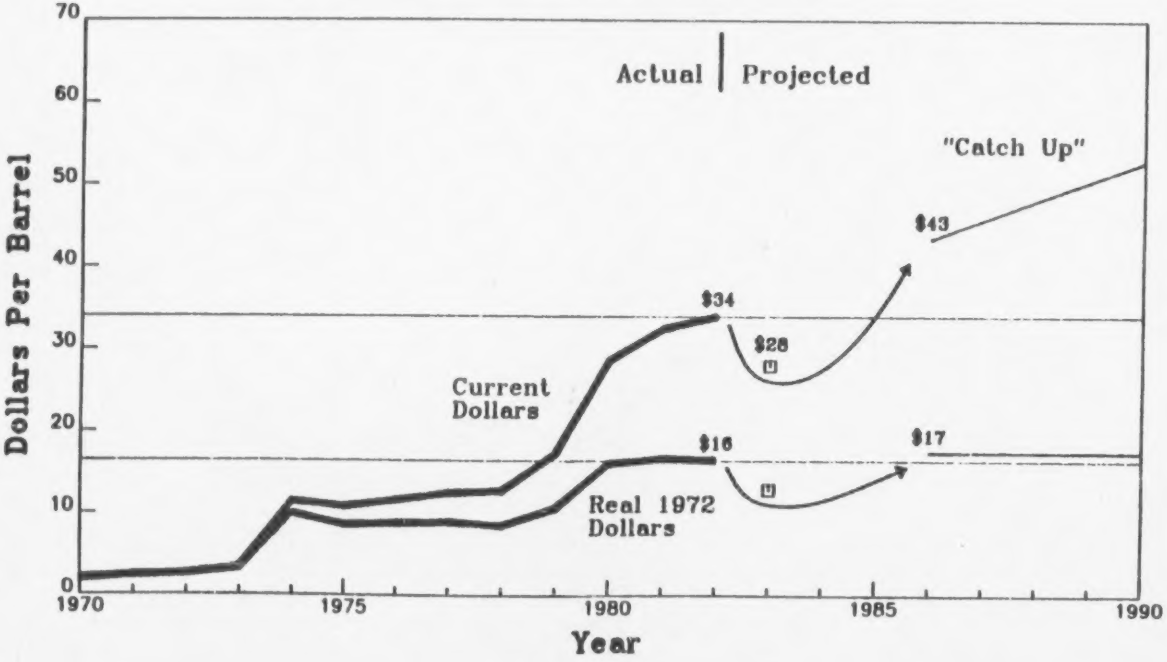
1982

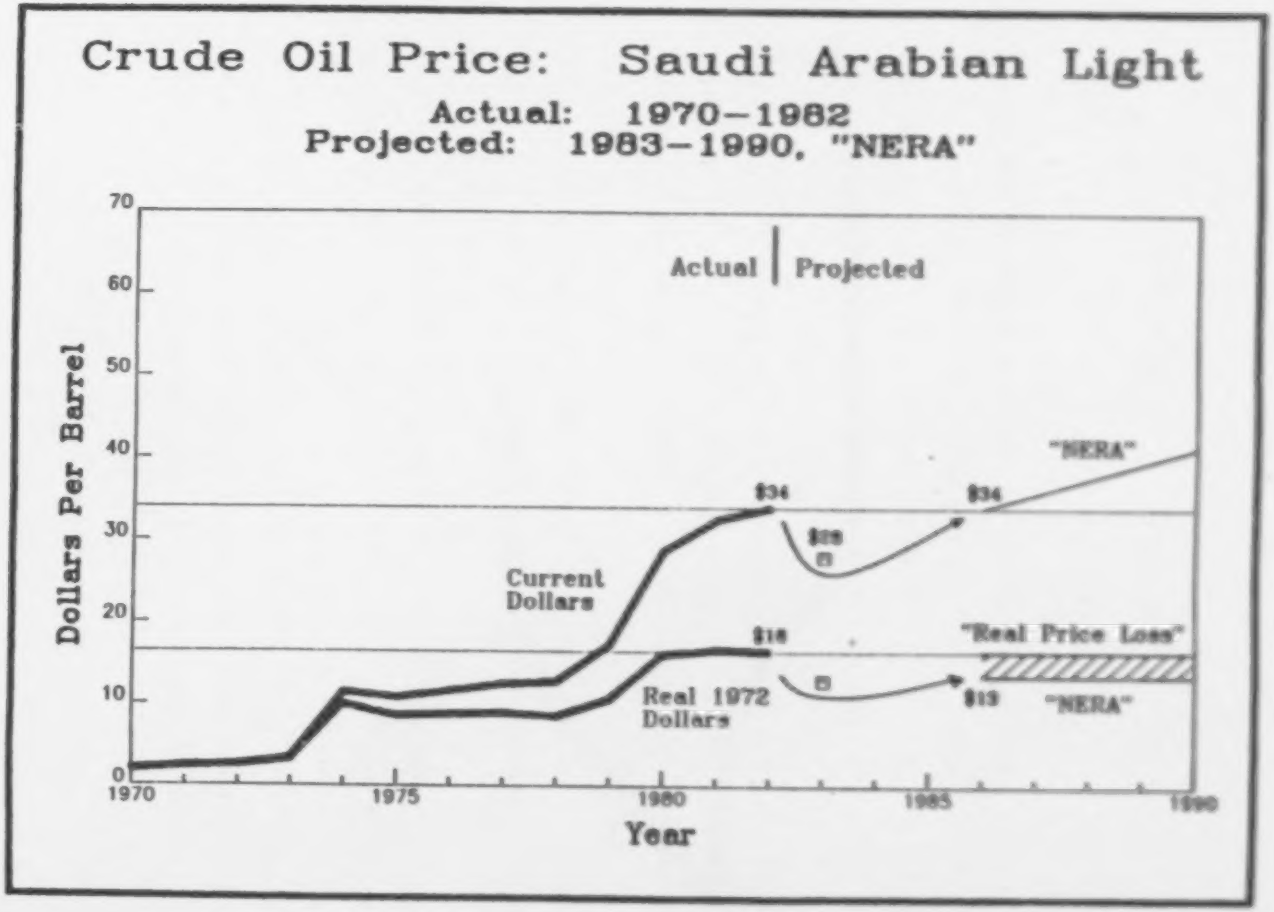


Free World Oil Production: OPEC and Non-OPEC
Actual: 1970-1982
Illustrative: 1983-1990, 2 Percent Growth

Crude Oil Price: Saudi Arabian Light

Actual: 1970–1982
Projected: 1983–1990, "Catch Up"




Crude Oil Price: Saudi Arabian Light
Actual: 1970–1982
Projected: 1983–1990, "NERA"
Actual
Projected
Dollars Per Barrel
0
10
20
30
40
50
60
70
1970
1975
1980
1985
1990
Year
Current Dollars
Real 1972 Dollars
$34
$28
$34
"NERA"
$16
$13
"Real Price Loss"
"NERA"

ATTACHMENT F-2

ELECTRIC UTILITY CONSUMPTION OF NATURAL GAS

As defined by NERA's natural gas supply model, the demand for natural gas includes (1) consumption by residential, commercial and industrial customers estimated by NERA's demand forecasting model, (2) consumption by all other non-specified customers (including field-use and losses) as a percentage of estimated demand net of electric utility demand and (3) consumption by electric utilities. Electric utility consumption is determined exogenous to the model and is a data input.

Estimates for electric utility consumption were derived from NERA's electricity supply optimization model with qualifications based on several gas industry and government sources. Table F-2-1 shows these estimates along with NERA's assumptions for five year periods from 1981 through 2000. Differences among the forecasts are due to varying estimates of the markets for competing fuels (coal, oil) and to varying estimates of economic recovery and conservation effects.

Figure F-2-1 shows NERA's base case estimated consumption of natural gas by electric utility customers declining to 2 Tcf by the year 2000. The estimated consumption is well within the judgments of other forecasts and is consistent with the economic and fuel price assumptions of the model.

TABLE F-2-1

ESTIMATES OF NATURAL GAS CONSUMPTION BY ELECTRIC UTILITIES

(Tcf)

	1981 (1)	1985 (2)	1990 (3)	1995 (4)	2000 (5)
NERA	3.681	3.460	2.800	2.300	2.000
NERC	3.495	2.750	2.250	-	-
GRI	3.890	-	3.580	-	2.150
AGA/TERA	-	3.102	2.662	2.457	2.150
FERC	3.600	3.260	2.880	2.260	1.770

- Not reported.

Source:
National Economic Research Associates, Inc. assumptions; North American Electric Reliability Council, Electric Power Supply and Demand, 1982; Gas Research Institute, "Gas Research Insights," October 1982; American Gas Association, "Total Energy Resource Analysis," July 18, 1982; and Federal Energy Regulatory Commission, Office of Pipeline and Producer Regulation, "The Future Supply and Demand for Supplemental Gas in the United States," May 5, 1982.

ATTACHMENT F-4

GLOSSARY OF DATA INPUTS

Abbreviation	Description
AGRICULT	Agriculture's share of total commercial activity.
APPLIANCE SATURATIONS	The proportion of total households that possess a particular gas or electric-fired appliance (space heater, waterheater, cooking range and clothes dryer).
APTS	Proportion of dwellings that contain five or more household units.
BELOW POVERTY LEVEL	The proportion of households that have an annual income below the poverty level.
COMMERCIAL LAG	Measure of the ability of commercial customers to adjust to changes in fuel prices. If the lag term equals one, the customer is unable to make adjustments. If the lag term equals zero, the customer is able to adjust instantaneously to changes in price.
COMMERCIAL SALES	Volume of natural gas sold to commerical customers.
CONSTRUCT	Construction's share of total commercial activity.
ENERGY PRICES	Average prices by customer class for the competing fuel types: natural gas, electricity, petroleum, coal and LPG (liquid petroleum gas).
EXISTING HOMES	Dwellings that existed in the previous year as opposed to new homes that were built in the current year.
HOUSEHOLDS	Number of households per state.
INCOME/HH	Real personal income per household.
INDUSTRIAL LAG	Measure of the ability of industrial customers to adjust to changes in fuel prices. If the lag term equals one, the customer is unable to make adjustments. If the lag term equals zero, the customer is able to adjust instantaneously to changes in price.
INDUSTRIAL SALES	Volume of natural gas sold to industrial customers (by SIC industrial classifications).

GLOSSARY OF DATA INPUTS

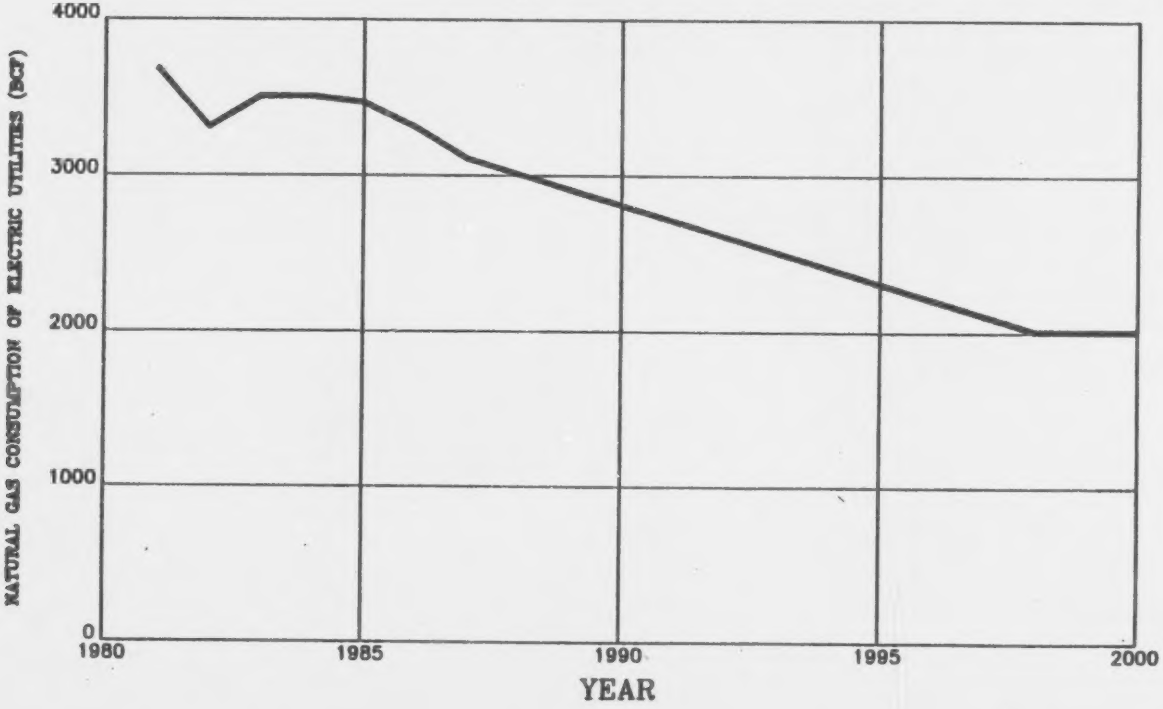
Abbreviation	Description
MEFS REGION	Midterm Energy Forecasting System Demand Regions
MINING	Mining's share of total commercial activity.
NEW HOMES	Dwellings that were built within the current year.
NON-MFG/TOT EARN	Nonmanufacturing as a proportion of total income.
PCT. APARTMENTS	Proportion of dwellings that contain five or more household units.
PEOPLE	Population by state.
PERSONAL INCOME	Real personal income (constant dollars). Historically, personal income has tracked changes in Gross National Product and is used as a proxy for forecasts of GNP in the model.
PRICE 100 THERMS	The marginal cost to residential customers of a therm of gas when purchased in 100-therm lots.
PRICE 30 THERMS	The marginal cost to residential customers of a therm of gas when purchased in 30-therm lots.
RESIDENTIAL CUSTOMERS	Number of residential customers.
RESIDENTIAL SALES	Volume of natural gas sold to residential customers.
SQUARE MILES	Number of square miles in the state (used to determine population density).
TOTAL HOUSING STOCK	The total number of residential dwellings in the current year.
TRANSP	Transportation's share of total commercial activity.
2-DIGIT SIC	Two-digit Standard Industrial Code classifications for the following industries: food, textile, lumber, paper, chemical, petroleum, rubber, stone (stone, clay and glass), primary metals, fabricated metals, machinery, electical machinery, transportation and other (all other manufacturing).

GLOSSARY OF DATA INPUTS

Abbreviation	Description
URBAN HOUSEHOLD	The proportion of households that reside in an urban area.
URBAN RATIO	Index of the proportion of households residing in an urban area.
VALUE ADDED	Measure of economic activity defined as the difference between the purchase price of raw materials and the selling price of the final product. In the model, indices of real growth in value added for each of the 13 two-digit SIC industrial classifications are used.
WAGE INDEXES	The real growth in wage rates by two-digit SIC industrial classifications.

FIGURE F-2-1

NATURAL GAS CONSUMPTION OF ELECTRIC UTILITIES
ASSUMED VALUES



NERAGEL Run Ticket #37 contains detailed information on the macroeconomic and demographic projections which we are using in our model simulations.

```
---------------------------------------------------------------------
                          NERAGEL RUN TICKET #37
---------------------------------------------------------------------
PROJECT:                                          DATE:  April 29,1983
-------------------------------------------------------------
BASIC ASSUMPTIONS:  Petroleum prices track crude oil price assumptions of
                    (declining to 1985, .7/1.2/2.0% growth to 1990/1995/2000).
                    Wellhead gas prices from 'GASMOD' Addabbo-Heinz
                    scenario.  T&D margins broken down by state.
                    Regional electric prices from the ZEPHYR rate model.
                    New income/GNP growth rates from NERA Energy Perspectives.
                    Negative national value added growth through the recession.
-------------------------------------------------------------
TITLE:  #37 -- ADDABBO - HEINZ SCENARIO
---------------------------------------------------------------------
ENERGY PRICES:
--------------
OIL:  National averages for historic data and growth assumptions
   RESIDENTIAL
      HISTORIC:  1981: Monthly Energy Review
      FORECAST: Declining price to 1985, .7/1.2/2.0% growth to 1990/1995/2000
---------------------------------------------------------------------
   COMMERCIAL
      HISTORIC:  M.E.R -- national wholesale #2 heating plus 1/2 retail markup
      FORECAST: Declining price to 1985, .7/1.2/2.0% growth to 1990/1995/2000
---------------------------------------------------------------------
   INDUSTRIAL
      HISTORIC:  M.E.R. -- national average of high & low sulfur residual
      FORECAST: Declining price to 1985, .7/1.2/2.0% growth to 1990/1995/2000
---------------------------------------------------------------------
GAS:  Supply price from 'GASMOD' Addabbo-Heinz scenarid.
   RESIDENTIAL
      HISTORIC:  M.E.R regional average
      FORECAST:  Addabbo=Heinz scenario. T&D margins by state.
---------------------------------------------------------------------
   COMMERCIAL
      HISTORIC:  M.E.R regional average
      FORECAST:  Addabbo=Heinz scenario. T&D margins by state.
---------------------------------------------------------------------
   INDUSTRIAL
      HISTORIC:  M.E.R regional average
      FORECAST:  Addabbo=Heinz scenario. T&D margins by state.
---------------------------------------------------------------------
ELECTRIC:  Regional forecasted growth rates from the 'ZEPHYR' rates model.
   RESIDENTIAL
      HISTORIC: 1981 average revenue from 1981 EEI Statistical Yearbook galleys
      FORECAST: ZEPHYR rate model regional prices.
---------------------------------------------------------------------
   COMMERCIAL
      HISTORIC: 1981 average revenue from 1981 EEI Statistical Yearbook galleys
      FORECAST: ZEPHYR rate model regional prices.
---------------------------------------------------------------------
   INDUSTRIAL
      HISTORIC: 1981 average revenue from 1981 EEI Statistical Yearbook galleys
      FORECAST: ZEPHYR rate model regional prices.
```

ATTACHMENT F-3
Page 1 of 3

```
------------------------------------------------------------------
COAL:
        HISTORIC:  3% growth rate assumption.
        FORECAST:  3% growth rate assumption.
------------------------------------------------------------------
LPG:
        HISTORIC:  5.2% D.O.E. growth assumption
        FORECAST:  5.2% D.O.E. growth assumption
------------------------------------------------------------------
DEMOGRAPHIC DATA:
    POPULATION
        HISTORIC:  U.S. Statistical Abstract, 1981. (1980 Census updated to 1981)
        FORECAST:  OBERS (March 1982 galleys) estimates

    HOUSEHOLDS
        HISTORIC:  Current Population Survey (date uncertain)
        FORECAST:  Current Population Survey estimates (date uncertain)

    INCOME:
        HISTORIC:  Survey of Current Business, August 1982, Vol.62, No. 8, p. 53.
        FORECAST:  NERA Energy Perspectives -- Key Forecast Assumptions

    PERCENT APARTMENTS -- MULTIPLE DWELLING
        HISTORIC: 1980 Census of Population & Housing, Provisional Estimates
                  fo Social, Economic, and Housing Characteristics.
        FORECAST: Predicast estimates.

    URBAN RATIO
        HISTORIC:  no growth assumption
        FORECAST:  no growth assumption

------------------------------------------------------------------
RATIOS OF TOTAL COMMERCIAL ACTIVITY:
 ---------------------------------
     MINING
        HISTORIC:  (Survey of Current Business is a possible source)
        FORECAST:  (OBERS is a possible source)
     AGRICULTURE
        HISTORIC:  (Survey of Current Business is a possible source)
        FORECAST:  (OBERS is a possible source)
     TRANSPORTATION
        HISTORIC:  (Survey of Current Business is a possible source)
        FORECAST:  (OBERS is a possible source)
     CONSTRUCTION
        HISTORIC:  (Survey of Current Business is a possible source)
        FORECAST:  (OBERS is a possible source)

    NON-MFG. EARNINGS/TOTAL EARNINGS
        HISTORIC:  (Survey of Current Business is a possible source)
        FORECAST:  (OBERS is a possible source)
------------------------------------------------------------------
VALUE ADDED BY SIC :  Recession assumptions applied to national data.
        HISTORIC:
        FORECAST: BLS productivity trends applied to OBERS employment trends
                  modified to account for the effects of the recession.
                  (The modifications were based on FRB estimates.)
------------------------------------------------------------------
WAGES BY SIC:
        HISTORIC:
        FORECAST:  2% growth assumption -- (a probable source is Predicasts)
```

```
-----------------------------------------------------------------------
-----------------------------------------------------------------------
BASE YEAR DATA:
---------------

PCT HOUSEHOLDS IN URBAN AREA:  used 1978 base case data
PCT HOUSEHOLD BELOW POVERTY LEVEL:  Poverty level defined as $5000 from
                                    1980 Census of Population & Housing
TRANSMISSION MILES:   used 1978 base case values
HEATING & COOLING DEGREE DAYS:  Historical average values.

-----------------------------------------------------------------------

BASE YEAR GAS CONSUMPTION:
---------------------------
      RESIDENTIAL: Gas Requirements Committee
      COMMERCIAL:  same
      INDUSTRIAL:  same

GAS APPLIANCE SATURATIONS:
      SPACE HEATERS:  1980 Census of Population & Housing, Provisional Estimates
                      of Social, Economic, and Housing Characteristics.
      WATER HEATERS:  same
      COOKING RANGE:  same
      CLOTHES DRYER:  1978 base case data assumptions.
-----------------------------------------------------------------------

BASE YEAR ELECTRIC CONSUMPTION:
---------------------------
      RESIDENTIAL: 1981 EEI Statistical Yearbook galleys.
      COMMERCIAL:  same  (does not include OTHER demand)
      INDUSTRIAL:  same

RESIDENTIAL ELECTRIC MODEL
---------------------------
ELECTRIC APPLIANCE SATURATIONS:
      SPACE HEATERS:  1980 Census of Population & Housing, Provisional Estimates
                      of Social, Economic, and Housing Characteristics.
      WATER HEATERS:  same
      COOKING RANGE:  same
      CLOTHES DRYER:  1978 base case data assumptions.

COMMERCIAL ELECTRIC MODEL
--------------------------
GAS SHARE--YEAR 0:  1979 values
GAS PRICE--YEAR 0:  Gas Facts

INDUSTRIAL ELECTRIC MODEL
--------------------------
GAS SHARE--YEAR 0:  1979 values from Annual Survey of Manufacturers
GAS PRICE--YEAR 0:  Gas Facts

VALUE ADDED BY SIC: 1978 Annual Survey of Manufacturers.

KWH BY SIC:  1978 Annual Survey of Manufacturers, Fuels & Electric
                    Energy Consumed

/EXIT
```

```
037 -- A00A0B0 - HEINZ SCENARIO                                                    FRI, MAY 13, 1983,  3:37 PM

THE BASE YEAR OF DATA = 1981
THE BASE YEAR INDEX   =    1
THERE NUMBER OF YEARS =   20

THE ELECTRIC MODEL WAS RUN

CURTAILMENT OF GAS SALES WAS NOT IN EFFECT
                             ---

DATA FILES FOR GRAPHING WERE CREATED

THE FOLLOWING REGIONS WERE SELECTED:  1-New England
                                      2-New York-New Jersey
                                      3-Middle Atlantic
                                      4-South Atlantic
                                      5-Midwest
                                      6-Southwest
                                      7-Central
                                      8-North Central
                                      9-West
                                     10-Northwest

THE VALUE USED TO DEFLATE $1981 TO $1970    =  2.120000

THE VALUE USED TO DEFLATE $1981 TO $1972    =  1.935000

THE LAG VALUE  FOR COMMERCIAL DEMAND        =   .900000

THE LAG VALUE FOR INDUSTRIAL DEMAND: SIC # 1=    .700000
                                     SIC # 2=    .700000
                                     SIC # 3=    .700000
                                     SIC # 4=    .700000
                                     SIC # 5=    .700000
                                     SIC # 6=    .700000
                                     SIC # 7=    .700000
                                     SIC # 8=    .700000
                                     SIC # 9=    .700000
                                     SIC #10=    .700000
                                     SIC #11=    .700000
                                     SIC #12=    .700000
                                     SIC #13=    .700000
                                     SIC #14=    .700000
```

ATTACHMENT F-5

```
037 -- ADDABBO - HEINZ SCENARIO                                                              FRI, MAY 13, 1983,  3:37 PM

--- S T A T E ---      --- N E F S   R E G I O N ---
-----------------      -----------------------------
 1. ALABAMA     AL      4. South Atlantic        SA
 2. ARIZONA     AZ      9. West                  W
 3. ARKANSAS    AR      6. Southwest             SW
 4. CALIF.      CA      9. West                  W
 5. COLORADO    CO      8. North Central         NC
 6. CONN.       CT      1. New England           NE
 7. DELAWARE    DE      3. Middle Atlantic       MA
 8. FLORIDA     FL      4. South Atlantic        SA
 9. GEORGIA     GA      4. South Atlantic        SA
10. IDAHO       ID     10. Northwest             NW
11. ILLINOIS    IL      5. Midwest               MW
12. INDIANA     IN      5. Midwest               MW
13. IOWA        IA      7. Central               C
14. KANSAS      KS      7. Central               C
15. KENTUCKY    KY      4. South Atlantic        SA
16. LOUIS.      LA      6. Southwest             SW
17. MAINE       ME      1. New England           NE
18. MD.-D.C.    MD      3. Middle Atlantic       MA
19. MASS.       MA      1. New England           NE
20. MICHIGAN    MI      5. Midwest               MW
21. MINN.       MN      5. Midwest               MW
22. MISS.       MS      4. South Atlantic        SA
23. MISSOURI    MO      7. Central               C
24. MONTANA     MT      8. North Central         NC
25. NEBRASKA    NE      7. Central               C
26. NEVADA      NV      9. West                  W
27. NEW HMP.    NH      1. New England           NE
28. NEW JER.    NJ      2. New York-New Jersey   NY
29. NEW MEX.    NM      6. Southwest             SW
30. NY-EAST     N1      2. New York-New Jersey   NY
31. NY-WEST     N2      2. New York-New Jersey   NY
32. N. CARO.    NC      4. South Atlantic        SA
33. N. DAK.     ND      8. North Central         NC
34. OHIO        OH      5. Midwest               MW
35. OKLAHOMA    OK      6. Southwest             SW
36. OREGON      OR     10. Northwest             NW
37. PA-EAST     P1      3. Middle Atlantic       MA
38. PA-WEST     P2      3. Middle Atlantic       MA
39. RH. ISL.    RI      1. New England           NE
40. S. CARO.    SC      4. South Atlantic        SA
41. SO. DAK.    SD      8. North Central         NC
42. TENN.       TN      4. South Atlantic        SA
43. TEXAS       TX      6. Southwest             SW
44. UTAH        UT      8. North Central         NC
45. VERMONT     VT      1. New England           NE
46. VIRGINIA    VA      3. Middle Atlantic       MA
47. WASH.       WA     10. Northwest             NW
48. WEST VA.    WV      3. Middle Atlantic       MA
49. WISCONS.    WI      5. Midwest               MW
50. WYOMING     WY      8. North Central         NC
```

```
-------------------     1.New England            NE
  6. CONN.        CT
 17. MAINE        ME
 19. MASS.        MA
 27. NEW HMP.     NH
 39. RH. ISL.     RI
 45. VERMONT      VT
-------------------     2.New York-New Jersey    NY
 28. NEW JER.     NJ
 30. NY-EAST      N1
 31. NY-WEST      N2
-------------------     3.Middle Atlantic        MA
  7. DELAWARE     DE
 18. MD.-D.C.     MD
 37. PA-EAST      P1
 38. PA-WEST      P2
 46. VIRGINIA     VA
 48. WEST VA.     WV
-------------------     4.South Atlantic         SA
  1. ALABAMA      AL
  8. FLORIDA      FL
  9. GEORGIA      GA
 15. KENTUCKY     KY
 22. MISS.        MS
 32. N. CARO.     NC
 40. S. CARO.     SC
 42. TENN.        TN
-------------------     5.Midwest                MW
 11. ILLINOIS     IL
 12. INDIANA      IN
 20. MICHIGAN     MI
 21. MINN.        MN
 34. OHIO         OH
 49. WISCONS.     WI
-------------------     6.Southwest              SW
  3. ARKANSAS     AR
 16. LOUIS.       LA
 29. NEW MEX.     NM
 35. OKLAHOMA     OK
 43. TEXAS        TX
-------------------     7.Central                C
 13. IOWA         IA
 14. KANSAS       KS
 23. MISSOURI     MO
 25. NEBRASKA     NE
-------------------     8.North Central          NC
  5. COLORADO     CO
 24. MONTANA      MT
 33. N. DAK.      ND
 41. SO. DAK.     SD
 44. UTAH         UT
 50. WYOMING      WY
-------------------     9.West                   W
  2. ARIZONA      AZ
  4. CALIF.       CA
 26. NEVADA       NV
-------------------     10.Northwest             NW
 10. IDAHO        ID
 36. OREGON       OR
 47. WASH.        WA
```

```
837 -- ADDABBO - HEINZ SCENARIO                                                        FRI, MAY 13, 1983,  3:37 PM
ANNUAL AVERAGE GROWTH RATES FOR SELECTED VARIABLES: 1981-2000

        INCOME   NUMBER       PCT
           PER       OF    APART-    POPU-
      --HOUSEHOLD(S)--     MENTS    LATION
STATE -------  -------  -------  -------
  1 L     2.05     1.46     1.51      .60
  2 Z     1.66     2.55     1.45     1.60
  3 R     1.89     1.55     1.53      .60
  4 A     1.24     1.97     1.47     1.10
  5 O     1.50     2.67     1.46     1.00
  6 T     1.14     1.55     1.46      .60
  7 E     1.45     1.81     1.46      .94
  8 L     1.61     2.60     1.46     1.74
  9 A     1.76     1.81     1.44      .95
 10 D     1.50     2.26     1.44     1.39
 11 L     1.33     1.32     1.48      .46
 12 N     1.59     1.56     1.47      .69
 13 A     1.48     1.41     1.48      .65
 14 S     1.51     1.53     1.53      .66
 15 Y     2.00     1.84     1.52      .97
 16 A     1.96     1.79     1.52      .92
 17 E     1.65     1.85     1.48      .98
 18 D     1.43     1.20     1.46      .42
 19 A     1.36     1.10     1.48      .31
 20 I     1.43     1.40     1.48      .61
 21 N     1.47     1.93     1.48     1.06
 22 S     2.11     1.87     1.48     1.00
 23 O     1.56     1.26     1.46      .39
 24 T     1.77     1.52     1.48      .66
 25 E     1.53     1.44     1.47      .57
 26 V     1.82     4.05     1.46     3.16
 27 H     1.49     2.24     1.47     1.37
 28 J     1.38     1.52     1.45      .66
 29 M     1.76     1.94     1.48     1.06
 30 1     1.47      .40     1.48      .00
 31 2     1.82      .98     1.46      .26
 32 C     1.84     1.87     1.50     1.00
 33 D     1.64     1.46     1.48      .59
 34 H     1.56     1.20     1.48      .41
 35 K     1.67     1.79     1.48      .92
 36 R     1.44     2.67     1.50     1.79
 37 1     1.57      .98     1.50      .12
 38 2     1.57      .98     1.48      .12
 39 I     1.54     1.55     1.49      .68
 40 C     1.95     1.91     1.51     1.04
 41 D     1.66     1.35     1.45      .49
 42 N     1.70     2.05     1.44     1.10
 43 X     1.57     2.33     1.48     1.46
 44 T     1.84     2.50     1.49     1.62
 45 T     1.59     1.76     1.50      .89
 46 A     1.59     1.89     1.48     1.02
 47 A     1.37     2.03     1.48     1.16
 48 V     2.10     1.51     1.55      .65
 49 I     1.48     1.57     1.48      .70
 50 Y     1.30     2.00     1.51     1.93
---- -------  -------  -------  -------
 U.S      1.56     1.76     1.48      .86
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037 -- ADDABBO - HEINZ SCENARIO
AVERAGE ANNUAL GROWTH RATE OF VALUE ADDED: 1981-2000

FRI, MAY 13, 1983, 3:37 PM

STATE	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL.	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE.	ELECTRIC MACHINE	TRANSP.	OTHER
1 AL	2.37	3.61	2.74	3.26	3.61	.16	4.96	3.29	1.55	2.00	3.72	4.67	2.57	2.03
2 AZ	2.37	3.61	2.74	3.26	3.61	.16	4.96	3.29	1.55	2.00	3.72	4.67	2.57	2.03
3 AR	2.37	3.61	2.74	3.26	3.61	.16	4.96	3.29	1.55	2.00	3.72	4.67	2.57	2.03
4 CA	2.37	3.61	2.74	3.26	3.61	.16	4.96	3.29	1.55	2.00	3.72	4.67	2.57	2.03
5 CO	2.37	3.61	2.74	3.26	3.61	.16	4.96	3.29	1.55	2.00	3.72	4.67	2.57	2.03
6 CT	2.37	3.61	2.74	3.26	3.61	.16	4.96	3.29	1.55	2.00	3.72	4.67	2.57	2.03
7 DE	2.37	3.61	2.74	3.26	3.61	.16	4.96	3.29	1.55	2.00	3.72	4.67	2.57	2.03
8 FL	2.37	3.61	2.74	3.26	3.61	.16	4.96	3.29	1.55	2.00	3.72	4.67	2.57	2.03
9 GA	2.37	3.61	2.74	3.26	3.61	.16	4.96	3.29	1.55	2.00	3.72	4.67	2.57	2.03
10 ID	2.37	3.61	2.74	3.26	3.61	.16	4.96	3.29	1.55	2.00	3.72	4.67	2.57	2.03
11 IL	2.37	3.61	2.74	3.26	3.61	.16	4.96	3.29	1.55	2.00	3.72	4.67	2.57	2.03
12 IN	2.37	3.61	2.74	3.26	3.61	.16	4.96	3.29	1.55	2.00	3.72	4.67	2.57	2.03
13 IA	2.37	3.61	2.74	3.26	3.61	.16	4.96	3.29	1.55	2.00	3.72	4.67	2.57	2.03
14 KS	2.37	3.61	2.74	3.26	3.61	.16	4.96	3.29	1.55	2.00	3.72	4.67	2.57	2.03
15 KY	2.37	3.61	2.74	3.26	3.61	.16	4.96	3.29	1.55	2.00	3.72	4.67	2.57	2.03
16 LA	2.37	3.61	2.74	3.26	3.61	.16	4.96	3.29	1.55	2.00	3.72	4.67	2.57	2.03
17 ME	2.37	3.61	2.74	3.26	3.61	.16	4.96	3.29	1.55	2.00	3.72	4.67	2.57	2.03
18 MD	2.37	3.61	2.74	3.26	3.61	.16	4.96	3.29	1.55	2.00	3.72	4.67	2.57	2.03
19 MA	2.37	3.61	2.74	3.26	3.61	.16	4.96	3.29	1.55	2.00	3.72	4.67	2.57	2.03
20 MI	2.37	3.61	2.74	3.26	3.61	.16	4.96	3.29	1.55	2.00	3.72	4.67	2.57	2.03
21 MN	2.37	3.61	2.74	3.26	3.61	.16	4.96	3.29	1.55	2.00	3.72	4.67	2.57	2.03
22 MS	2.37	3.61	2.74	3.26	3.61	.16	4.96	3.29	1.55	2.00	3.72	4.67	2.57	2.03
23 MO	2.37	3.61	2.74	3.26	3.61	.16	4.96	3.29	1.55	2.00	3.72	4.67	2.57	2.03
24 MT	2.37	3.61	2.74	3.26	3.61	.16	4.96	3.29	1.55	2.00	3.72	4.67	2.57	2.03
25 NE	2.37	3.61	2.74	3.26	3.61	.16	4.96	3.29	1.55	2.00	3.72	4.67	2.57	2.03
26 NV	2.37	3.61	2.74	3.26	3.61	.16	4.96	3.29	1.55	2.00	3.72	4.67	2.57	2.03
27 NH	2.37	3.61	2.74	3.26	3.61	.16	4.96	3.29	1.55	2.00	3.72	4.67	2.57	2.03
28 NJ	2.37	3.61	2.74	3.26	3.61	.16	4.96	3.29	1.55	2.00	3.72	4.67	2.57	2.03
29 NM	2.37	3.61	2.74	3.26	3.61	.16	4.96	3.29	1.55	2.00	3.72	4.67	2.57	2.03
30 N1	2.37	3.61	2.74	3.26	3.61	.16	4.96	3.29	1.55	2.00	3.72	4.67	2.57	2.03
31 N2	2.37	3.61	2.74	3.26	3.61	.16	4.96	3.29	1.55	2.00	3.72	4.67	2.57	2.03
32 NC	2.37	3.61	2.74	3.26	3.61	.16	4.96	3.29	1.55	2.00	3.72	4.67	2.57	2.03
33 ND	2.37	3.61	2.74	3.26	3.61	.16	4.96	3.29	1.55	2.00	3.72	4.67	2.57	2.03
34 OH	2.37	3.61	2.74	3.26	3.61	.16	4.96	3.29	1.55	2.00	3.72	4.67	2.57	2.03
35 OK	2.37	3.61	2.74	3.26	3.61	.16	4.96	3.29	1.55	2.00	3.72	4.67	2.57	2.03
36 OR	2.37	3.61	2.74	3.26	3.61	.16	4.96	3.29	1.55	2.00	3.72	4.67	2.57	2.03
37 P1	2.37	3.61	2.74	3.26	3.61	.16	4.96	3.29	1.55	2.00	3.72	4.67	2.57	2.03
38 P2	2.37	3.61	2.74	3.26	3.61	.16	4.96	3.29	1.55	2.00	3.72	4.67	2.57	2.03
39 RI	2.37	3.61	2.74	3.26	3.61	.16	4.96	3.29	1.55	2.00	3.72	4.67	2.57	2.03
40 SC	2.37	3.61	2.74	3.26	3.61	.16	4.96	3.29	1.55	2.00	3.72	4.67	2.57	2.03
41 SD	2.37	3.61	2.74	3.26	3.61	.16	4.96	3.29	1.55	2.00	3.72	4.67	2.57	2.03
42 TN	2.37	3.61	2.74	3.26	3.61	.16	4.96	3.29	1.55	2.00	3.72	4.67	2.57	2.03
43 TX	2.37	3.61	2.74	3.26	3.61	.16	4.96	3.29	1.55	2.00	3.72	4.67	2.57	2.03
44 UT	2.37	3.61	2.74	3.26	3.61	.16	4.96	3.29	1.55	2.00	3.72	4.67	2.57	2.03
45 VT	2.37	3.61	2.74	3.26	3.61	.16	4.96	3.29	1.55	2.00	3.72	4.67	2.57	2.03
46 VA	2.37	3.61	2.74	3.26	3.61	.16	4.96	3.29	1.55	2.00	3.72	4.67	2.57	2.03
47 WA	2.37	3.61	2.74	3.26	3.61	.16	4.96	3.29	1.55	2.00	3.72	4.67	2.57	2.03
48 WV	2.37	3.61	2.74	3.26	3.61	.16	4.96	3.29	1.55	2.00	3.72	4.67	2.57	2.03
49 WI	2.37	3.61	2.74	3.26	3.61	.16	4.96	3.29	1.55	2.00	3.72	4.67	2.57	2.03
50 WY	2.37	3.61	2.74	3.26	3.61	.16	4.96	3.29	1.55	2.00	3.72	4.67	2.57	2.03
U.S.	2.37	3.61	2.74	3.26	3.61	.16	4.96	3.29	1.55	2.00	3.72	4.67	2.57	2.03

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037 -- ADDABBO - HEINZ SCENARIO                                                                    FRI, MAY 13, 1983,  3:37 PM

                                   BASE YEAR DATA -- GAS PRICE FORMATION MODEL
                                   -------------------------------------------
                            ----DISTRIBUTION MARGINS----     1981   -----1981 AVERAGE PRICE-----
                   TRANS-  RESIDEN-   COMMER-    INDUS-    SUPPLY  RESIDEN-   COMMER-    INDUS-
         STATE    MISSION      TIAL      CIAL     TRIAL     PRICE      TIAL      CIAL     TRIAL
      --------   -------- --------  --------  --------  --------  --------  --------  --------
                 ----------------( $1981/MMBTU)------------------  -------( $1981/MMBTU)-------
   1 ALABAMA          .71     1.71       .82       .40      2.09      4.51      3.62      3.20
   2 ARIZONA          .30     1.92      1.01       .34      2.09      4.31      3.40      2.73
   3 ARKANSAS         .30      .41       .12       .01      2.09      2.80      2.51      2.40
   4 CALIF.           .93      .54      1.17       .92      2.09      3.56      4.19      3.94
   5 COLORADO         .70     1.31       .98       .59      2.09      4.10      3.77      3.38
   6 CONN.           1.11     3.45      2.26      1.76      2.09      6.65      5.46      4.96
   7 DELAWARE         .89     2.34      1.90       .06      2.09      5.32      4.88      3.04
   8 FLORIDA          .40     2.69      1.09       .60      2.09      5.18      3.58      3.09
   9 GEORGIA          .85     1.63       .60       .59      2.09      4.57      3.54      3.53
  10 IDAHO           1.53     1.87      1.06       .25      2.09      5.49      4.68      3.87
  11 ILLINOIS         .45     1.28      1.00       .82      2.09      3.82      3.54      3.36
  12 INDIANA          .53      .94       .72       .38      2.09      3.56      3.34      3.00
  13 IOWA             .68     1.12       .73       .31      2.09      3.89      3.50      3.08
  14 KANSAS           .30      .55       .14       .44      2.09      2.94      2.53      2.83
  15 KENTUCKY         .58      .83       .72       .40      2.09      3.50      3.39      3.07
  16 LOUIS.           .51     1.12       .80       .17      2.09      3.72      3.40      2.77
  17 MAINE           1.60     3.74      2.31      1.64      2.09      7.43      6.00      5.33
  18 MD.-D.C.         .88     2.03      1.58       .97      2.09      5.00      4.55      3.94
  19 MASS.            .75     3.38      2.82      1.89      2.09      6.22      5.66      4.73
  20 MICHIGAN        1.23      .46       .42       .17      2.09      3.78      3.74      3.49
  21 MINN.            .84     1.16       .88       .17      2.09      4.09      3.81      3.10
  22 MISS.            .57     1.15       .84       .52      2.09      3.81      3.50      3.18
  23 MISSOURI         .35     1.34       .95       .57      2.09      3.78      3.39      3.01
  24 MONTANA          .79     1.06      1.06       .78      2.09      3.94      3.94      3.66
  25 NEBRASKA         .58      .77       .32       .06      2.09      3.44      2.99      2.73
  26 NEVADA           .58     1.97      1.81       .59      2.09      4.64      4.48      3.26
  27 NEW HMP.        1.14     2.03      1.65      1.24      2.09      5.26      4.88      4.47
  28 NEW JER.         .96     2.87      2.43      1.45      2.09      5.92      5.48      4.50
  29 NEW MEX.         .19     1.37      1.05       .59      2.09      3.65      3.33      2.87
  30 NY-EAST         1.07     2.04      1.33       .74      2.09      5.20      4.49      3.90
  31 NY-WEST          .66     1.09       .83       .57      2.09      3.84      3.58      3.32
  32 N. CARO.         .90     2.02      1.67      1.27      2.09      5.01      4.66      4.26
  33 N. DAK.          .69     1.46      1.06       .90      2.09      4.24      3.84      3.68
  34 OHIO             .66     1.09       .83       .57      2.09      3.84      3.58      3.32
  35 OKLAHOMA         .61      .00       .00       .01      2.09      2.70      2.70      2.71
  36 OREGON          1.80     1.89      1.30       .77      2.09      5.78      5.19      4.66
  37 PA-EAST          .70     1.55      1.32       .73      2.09      4.34      4.11      3.52
  38 PA-WEST          .66     1.09       .83       .57      2.09      3.84      3.58      3.32
  39 RH. ISL.        1.17     2.89      2.53      1.69      2.09      6.15      5.79      4.95
  40 S. CARO.         .87     1.82       .92       .91      2.09      4.78      3.88      3.87
  41 SO. DAK.         .71     1.05       .63       .40      2.09      3.85      3.43      3.20
  42 TENN.            .48      .87       .92       .42      2.09      3.44      3.49      2.99
  43 TEXAS            .71     1.23       .88       .47      2.09      4.03      3.68      3.27
  44 UTAH             .30      .72       .22       .22      2.09      3.11      2.61      2.61
  45 VERMONT         1.90     3.23      2.65      1.64      2.09      7.22      6.64      5.63
  46 VIRGINIA         .69     1.96      1.42       .66      2.09      4.74      4.20      3.44
  47 WASH.           1.45     1.89      1.30       .77      2.09      5.43      4.84      4.31
  48 WEST VA.         .73     1.30       .84       .63      2.09      4.12      3.66      3.45
  49 WISCONS.        1.57     1.02       .50       .10      2.09      4.68      4.16      3.76
  50 WYOMING          .43      .85       .52       .23      2.09      3.37      3.04      2.75
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BASE YEAR DATA -- RESIDENTIAL GAS [illegible]

	STATE	--RESIDENTIAL GAS-- SALES	CUSTOMERS	GAS APPLIANCE SATURATIONS SPACE HEATERS	WATER HEATERS	COOKING RANGES	CLOTHES DRYERS	AVERAGE THERMS USED PER YEAR SPACE HEATERS	WATER HEATERS	COOKING RANGES	CLOTHES DRYERS
		(BCF)	(000)	(RATIOS)				(THERMS/YEAR)			
1	ALABAMA	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2	ARIZONA	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3	ARKANSAS	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
4	CALIF.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
5	COLORADO	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
6	CONN.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
7	DELAWARE	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8	FLORIDA	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
9	GEORGIA	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
10	IDAHO	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
11	ILLINOIS	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
12	INDIANA	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
13	IOWA	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
14	KANSAS	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
15	KENTUCKY	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
16	LOUIS.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
17	MAINE	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
18	MD.-D.C.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
19	MASS.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
20	MICHIGAN	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
21	MINN.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
22	MISS.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
23	MISSOURI	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
24	MONTANA	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
25	NEBRASKA	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
26	NEVADA	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
27	NEW HAMP.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
28	NEW JER.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
29	NEW MEX.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
30	NY-EAST	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
31	NY-WEST	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
32	N. CARO.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
33	N. DAK.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
34	OHIO	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
35	OKLAHOMA	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
36	OREGON	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
37	PA-EAST	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
38	PA-WEST	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
39	RH. ISL.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
40	S. CARO.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
41	SO. DAK.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
42	TENN.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
43	TEXAS	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
44	UTAH	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
45	VERMONT	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
46	VIRGINIA	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
47	WASH.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
48	WEST VA.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
49	WISCONS.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
50	WYOMING	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

#37 -- ADDABBO - HEINZ SCENARIO

FRI, MAY 13, 1983, 3:37 PM

BASE YEAR DATA -- RESIDENTIAL GAS MODEL

	STATE	PRICE 100 THERMS	PRICE 30 THERMS	URBAN HOUSEHOLD	BELOW POVERTY LEVEL	HEATING DEGREE DAYS	COOLING DEGREE DAYS	GAS TRANS-MISSION MILES	INCOME /NEW HOUSEHOLD
		--($1981/THERM)--		-----(RATIOS)-----					($1981/HH)
1	ALABAMA	.4220	.5295	.6426	.1051	2624.12	142031.00	104.25	24300.00
2	ARIZONA	.3540	.4644	.8357	.1175	1614.21	93323.50	44.39	27006.00
3	ARKANSAS	.2600	.3706	.6610	.1913	3379.90	125521.20	120.16	22704.00
4	CALIF.	.3140	.4251	.9073	.1145	2004.00	34345.49	49.91	33241.00
5	COLORADO	.3094	.4903	.8542	.1005	6047.50	26162.13	89.92	30300.00
6	CONN.	.6460	.7240	.7060	.0945	5937.84	53722.54	110.47	36091.00
7	DELAWARE	.5122	.6101	.7939	.1241	4971.12	80675.92	114.53	33262.00
8	FLORIDA	.4327	.5306	.8596	.1390	861.70	231935.50	57.20	26266.00
9	GEORGIA	.4364	.5420	.7130	.1570	2840.94	136907.25	85.61	26262.00
10	IDAHO	.5070	.6062	.7146	.1310	6145.04	22909.07	15.07	25970.00
11	ILLINOIS	.4039	.5119	.8795	.1223	6106.35	62467.43	170.16	33055.00
12	INDIANA	.3643	.4744	.7550	.1173	5590.37	60304.34	156.26	20370.00
13	IOWA	.3849	.4940	.7513	.1203	6945.05	61024.03	109.59	20700.00
14	KANSAS	.2097	.4005	.8292	.1314	4097.60	89307.03	189.47	30011.00
15	KENTUCKY	.3509	.4614	.6311	.1761	4735.29	79966.70	174.40	24693.00
16	LOUIS.	.3307	.4417	.7442	.1025	1668.20	173117.20	400.50	20140.00
17	MAINE	.6040	.7561	.6201	.1425	7605.29	26457.29	3.59	25073.00
18	MD.-D.C.	.4947	.5947	.8437	.1094	4524.67	93021.06	75.66	33617.00
19	MASS.	.6042	.6093	.8436	.1261	5915.91	45282.10	100.73	31792.00
20	MICHIGAN	.3904	.5060	.8014	.1194	6551.03	50022.54	121.20	32057.00
21	MINN.	.4097	.5173	.7950	.1195	8460.43	44360.30	58.23	30492.00
22	MISS.	.3511	.4616	.5903	.2109	2350.30	151285.30	197.54	22405.00
23	MISSOURI	.3701	.4076	.7792	.1444	4740.10	92514.92	60.15	27440.00
24	MONTANA	.3016	.4909	.7629	.1330	7579.49	21120.16	20.09	26230.00
25	NEBRASKA	.3357	.4466	.7003	.1352	6139.51	70192.45	97.33	20549.00
26	NEVADA	.4311	.5371	.9302	.0900	4020.66	30054.07	11.25	31199.00
27	NEW HMP.	.5133	.6110	.6077	.1123	7390.13	29216.00	14.20	20045.00
28	NEW JER.	.5710	.6610	.8800	.1112	5045.23	72463.00	173.92	35124.00
29	NEW MEX.	.3329	.4430	.7015	.1536	4272.70	44415.90	49.59	25690.00
30	NY-EAST	.4996	.5990	.8946	.1434	4879.02	74449.14	89.24	19159.00
31	NY-WEST	.3621	.4723	.7707	.1434	6876.06	74446.97	87.01	12310.00
32	N. CARO.	.4029	.5041	.5040	.1400	3491.85	105197.67	46.07	25001.00
33	N. DAK.	.4184	.5254	.7152	.1401	9210.50	30974.77	16.04	27730.00
34	OHIO	.4081	.5084	.8101	.1225	5703.07	50019.91	249.11	29700.00
35	OKLAHOMA	.2536	.3630	.7696	.1507	3710.22	107070.50	161.43	27426.00
36	OREGON	.5340	.6292	.7710	.1255	4823.72	19599.97	12.13	27463.00
37	PA-EAST	.4412	.5464	.8052	.1210	4896.13	70199.94	296.67	14771.00
38	PA-WEST	.3913	.5001	.8840	.1210	6145.04	70195.11	247.02	14771.00
39	RH. ISL.	.5949	.6814	.8378	.1406	6002.31	45624.11	50.52	29500.00
40	S. CARO.	.4631	.5664	.6610	.1543	2732.03	137324.22	76.45	24515.00
41	SO. DAK.	.3720	.4825	.6579	.1604	7854.96	20359.96	12.40	24036.00
42	TENN.	.3222	.4333	.6661	.1649	3460.95	113197.22	123.60	24459.00
43	TEXAS	.3597	.4699	.8415	.1395	1705.23	150003.59	145.63	30639.00
44	UTAH	.3156	.4266	.8761	.1011	6013.13	23007.25	11.03	27695.00
45	VERMONT	.7211	.7854	.5299	.1217	7906.97	27376.09	6.47	24973.00
46	VIRGINIA	.4714	.5730	.7000	.1157	3000.54	104203.83	59.03	29971.00
47	WASH.	.5136	.6114	.8097	.1191	5560.61	13414.64	25.61	30715.00
48	WEST VA.	.4179	.5250	.6242	.1503	4606.70	76130.47	242.07	24806.00
49	WISCONS.	.4643	.5674	.7644	.1057	7504.00	41249.27	50.13	29636.00
50	WYOMING	.3573	.4677	.7591	.0951	7469.62	15023.12	29.66	34636.00

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037 -- ADDABBO - HEINZ SCENARIO                                                              FRI, MAY 13, 1983,  3:37 PM

BASE YEAR DATA -- COMMERCIAL GAS MODEL
-----------------------------------------
              ----COMMERCIAL----    SQUARE
      STATE     SALES                MILES
   --------   --------  --------  --------
                (BCF)                (000)
 1 ALABAMA      23.35                50.85
 2 ARIZONA      27.90               113.56
 3 ARKANSAS     20.83                52.10
 4 CALIF.      241.79               156.54
 5 COLORADO     62.02               103.79
 6 CONN.        23.23                 4.87
 7 DELAWARE      3.57                 1.98
 8 FLORIDA      32.76                54.14
 9 GEORGIA      61.50                58.20
10 IDAHO         8.12                82.67
11 ILLINOIS    229.67                55.80
12 INDIANA      70.52                36.19
13 IOWA         49.57                56.04
14 KANSAS       40.19                82.06
15 KENTUCKY     35.47                39.65
16 LOUIS.       35.75                45.15
17 MAINE         1.04                30.93
18 MD.-D.C.     30.73                 9.95
19 MASS.        47.25                 7.83
20 MICHIGAN    176.27                56.82
21 MINN.        72.59                79.29
22 MISS.        10.70                47.36
23 MISSOURI     60.60                69.05
24 MONTANA      13.66               145.60
25 NEBRASKA     33.61                76.52
26 NEVADA        7.91               109.89
27 NEW HMP.      2.86                 9.03
28 NEW JER.     75.37                 7.53
29 NEW MEX.     10.99               121.45
30 NY-EAST      94.93                29.92
31 NY-WEST      60.70                17.95
32 N. CARO.     25.31                48.80
33 N. DAK.       9.99                69.20
34 OHIO        162.13                41.02
35 OKLAHOMA     40.11                68.90
36 OREGON       14.69                96.21
37 PA-EAST      64.49                16.00
38 PA-WEST      64.49                28.14
39 RH. ISL.      6.03                 1.05
40 S. CARO.     17.74                30.20
41 SO. DAK.      7.34                75.96
42 TENN.        41.72                41.37
43 TEXAS       139.30               262.97
44 UTAH         21.69                82.38
45 VERMONT       1.29                 9.27
46 VIRGINIA     29.54                39.84
47 WASH.        25.60                66.66
48 WEST VA.     22.43                24.08
49 WISCONS.     70.76                54.46
50 WYOMING       9.10                97.20
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837 -- ADDABBO - HEINZ SCENARIO                                                        FRI, MAY 13, 1983,  3:37 PM

                                        BASE YEAR QUANTITY OF GAS DEMANDED BY 2-DIGIT SIC
                                        -------------------------------------------------
                                    CHEMICAL                            PRIMARY FABRIC.             LECTRIC
YEAR      FOOD TEXTILE  LUMBER   PAPER /PETROL           RUBBER   STONE   METAL   METAL MACHINE MACHINE  TRANSP   TOTAL
----    ------  ------  ------  ------  ------  ------   ------  ------  ------  ------  ------  ------  ------  ------
        ------------------------------------------------------------( BCF )--------------------------------------------------------
 1 AL     7.77   14.01     ---   10.03   31.49     ---     2.36   17.27   11.94    8.94     .00    1.53    1.29   34.15  143.50
 2 AZ     5.72     .37     ---    1.75   13.29     ---      .34    5.99    6.43    1.06     .00     .45     .74    9.73   45.00
 3 AR     1.25     .05     ---    3.50   71.14     ---     1.40    1.73    7.04     .42     .00     .19     .20   39.21  127.00
 4 CA    47.71    3.12     ---   14.57  110.94     ---     2.07   50.03   53.65    8.07    3.00    3.70    6.15   81.23  385.92
 5 CO     4.23     .01     ---    1.40   15.02     ---      .45    2.10   11.33     .25     .00     .37     .35    8.70   44.35
 6 CT     1.70     .66     ---    1.04    1.32     ---      .40     .99    1.24    1.71    1.00     .05     .75    8.77   20.52
 7 DE      .50     .09     ---     .26    1.20     ---      .15     .92    2.42     .44     .00     .16     .22    1.13    7.55
 8 FL     4.01    8.60     ---   11.66   19.51     ---     1.46   10.70    7.40    1.02     .00     .95     .00   21.15   88.94
 9 GA     8.51   15.34     ---   20.61   34.47     ---     2.59   10.90   13.00    3.22     .00    1.67    1.41   37.30  157.17
10 ID     4.07     .04     ---    6.72    5.03     ---      .07    1.01    2.70     .23     .00     .03     .69    4.56   26.02
11 IL    37.09     .56     ---   22.09   40.49     ---     5.13   10.10  103.63   16.46   15.00    7.21   26.60   44.03  346.06
12 IN    27.40     .40     ---   16.55   25.06     ---     3.71   13.15   74.93   11.90   11.00    5.22   19.23   32.41  250.94
13 IA    20.00     .09     ---    3.39   19.95     ---      .46    2.99    3.00    2.40    1.00    1.24     .31   55.46  111.33
14 KS     6.00     .01     ---    2.96   65.76     ---     1.23    9.00    2.40     .99     .00     .75    1.71   33.93  125.70
15 KY     4.06     .74     ---    2.14   10.41     ---     1.22    7.45   19.69    3.54    1.00    1.27    1.75    9.15   62.42
16 LA     9.53     .36     ---   26.71  543.19     ---    10.71   13.23   59.04    3.21    3.00    1.45    2.12  299.36  972.71
17 ME      .06     .02     ---     .03     .05     ---      .02     .03     .04     .06     .00     .03     .02     .30     .66
18 MD     4.26     .77     ---    2.25   10.91     ---     1.20    7.00   20.63    3.71    1.00    1.33    1.03    9.59   65.35
19 MA     3.07    1.19     ---    1.06    2.30     ---      .07    1.70    2.24    3.09    2.00    1.54    1.35   15.00   37.15
20 MI    24.76     .36     ---   14.95   31.60     ---     3.35   11.00   67.70   10.75   10.00    4.71   17.30   29.29  226.02
21 MN    14.50     .07     ---    2.45   14.41     ---      .33    2.16    2.00    1.79    1.00     .90     .22   40.06   80.70
22 MS      .05     .03     ---    2.37   40.22     ---      .95    1.17    5.31     .29     .00     .13     .19   26.57   86.00
23 MO     3.69     .00     ---    1.00   39.94     ---      .75    5.95    1.50     .60     .00     .46    1.04   20.61   76.34
24 MT     1.50     .00     ---     .50    5.32     ---      .16     .77    4.01     .09     .00     .13     .12    3.11   15.72
25 NE     8.47     .04     ---    1.43    8.42     ---      .19    1.26    1.63    1.05     .00     .52     .13   23.40   46.55
26 NV      .90     .06     ---     .27    2.09     ---      .05     .94    1.01     .17     .00     .07     .12    1.53    7.21
27 NH      .20     .00     ---     .12     .16     ---      .06     .12     .15     .20     .00     .10     .09    1.03    2.29
28 NJ     5.63    1.02     ---    2.97   14.42     ---     1.69   10.31   27.20    4.90    2.00    1.75    2.42   12.67   87.07
29 NM     3.30     .22     ---    1.03    7.05     ---      .20    3.54    3.00     .63     .00     .27     .44    5.75   27.10
30 N1     4.00     .07     ---    2.53   12.31     ---     1.45    8.01   23.20    4.19    1.00    1.50    2.07   10.02   73.62
31 N2     3.07     .56     ---    1.62    7.07     ---      .92    5.63   14.09    2.60    1.00     .96    1.32    6.92   47.43
32 NC     4.74    8.54     ---   11.40   19.20     ---     1.44   10.53    7.20    1.79     .00     .93     .79   20.02   87.55
33 ND      .30     .00     ---     .05     .30     ---      .01     .04     .06     .04     .00     .02     .00     .02    1.64
34 OH    21.50    3.90     ---   11.39   95.20     ---     6.50   39.54  104.30   10.00    7.00    6.72    9.29   40.59  333.17
35 OK     9.52     .01     ---    4.64  102.99     ---     1.93   15.35    3.00    1.55     .00    1.10    2.69   53.14  196.00
36 OR     6.13     .06     ---   10.11    8.79     ---      .11    1.92    4.19     .35     .00     .05    1.03    6.06   39.20
37 P1     9.69    1.75     ---    5.11   24.03     ---     2.92   17.76   46.97    8.44    3.00    3.02    4.17   21.03  149.50
38 P2     9.69    1.75     ---    5.11   24.03     ---     2.92   17.76   46.97    8.44    3.00    3.02    4.17   21.03  149.50
39 RI      .43     .16     ---     .26     .33     ---      .12     .25     .31     .43     .00     .21     .19    2.19    4.07
40 SC     3.37    6.07     ---    8.16   13.65     ---     1.02    7.40    5.10    1.20     .00     .66     .56   14.00   62.24
41 SD      .05     .00     ---     .14     .04     ---      .02     .13     .16     .11     .00     .05     .01    2.35    4.67
42 TN     6.41   11.56     ---   15.53   25.90     ---     1.95   14.25    9.05    2.43     .00    1.26    1.07   20.17  110.47
43 TX    16.11     .61     ---   45.13  917.56     ---    10.10   22.35  101.00    5.42    5.00    2.45    3.57  505.67 1643.04
44 UT     3.49     .01     ---    1.16   12.40     ---      .37    1.00    9.35     .21     .00     .30     .29    7.25   36.63
45 VT      .13     .05     ---     .00     .11     ---      .04     .00     .10     .14     .00     .07     .00     .70    1.55
46 VA     3.07     .55     ---    1.62    7.06     ---      .92    5.62   14.07    2.67    1.00     .96    1.32    6.91   47.30
47 WA    11.56     .12     ---   19.00   16.57     ---      .21    2.06    7.91     .66     .00     .09    1.95   12.95   73.95
48 WV     3.37     .61     ---    1.70    8.63     ---     1.02    6.10   16.33    2.94    1.00    1.05    1.45    7.59   51.93
49 WI    13.06     .19     ---    7.09   16.72     ---     1.77    6.27   35.73    5.67    5.00    2.49    9.17   15.45  119.41
50 WY     2.81     .01     ---     .93   10.00     ---      .30    1.45    7.54     .17     .00     .25     .23    5.04   29.52
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037 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

BASE YEAR DATA -- RESIDENTIAL ELECTRIC MODEL

	STATE	ELECTRIC-SALES (KWH)	ELECTRIC APPLIANCE SATURATIONS (RATIOS)				AIR CONDITIONER SATURATIONS (RATIOS)			NEW HOUSES (RATIO)
			HEATERS	HEATERS	RANGES	DRYERS	1 UNIT	2 UNITS	3 UNITS	
1	ALABAMA	17192.00	.2617	.5310	.6633	.3393	.2337	.1066	.3722	.4330
2	ARIZONA	9991.00	.3499	.3274	.5555	.2105	.0616	.0194	.6202	.5350
3	ARKANSAS	9107.00	.1690	.2679	.3096	.2003	.2377	.0076	.3066	.4320
4	CALIF.	53499.00	.1574	.1243	.4002	.2919	.1520	.0245	.2203	.4530
5	COLORADO	7490.00	.0962	.1523	.7044	.4245	.1364	.0156	.1505	.4530
6	CONN.	8100.00	.1105	.2579	.6341	.4479	.2677	.1151	.0730	.3000
7	DELAWARE	1699.00	.1159	.3642	.5477	.4500	.2100	.1275	.3100	.4360
8	FLORIDA	47706.00	.6150	.0259	.7090	.2077	.1065	.0913	.5650	.5270
9	GEORGIA	22163.00	.1939	.4760	.6090	.3475	.1072	.0036	.3005	.4700
10	IDAHO	5184.04	.3059	.0357	.9050	.6263	.1404	.0169	.1624	.3020
11	ILLINOIS	29261.00	.0707	.1300	.2750	.2400	.2654	.0090	.3135	.2940
12	INDIANA	19379.00	.1664	.3607	.4004	.4134	.2290	.0600	.2923	.3090
13	IOWA	9609.00	.0060	.2991	.5419	.4163	.2003	.0460	.3411	.2630
14	KANSAS	7590.00	.0770	.1149	.5620	.4143	.2620	.0599	.4349	.2020
15	KENTUCKY	14095.00	.2299	.4709	.6235	.3161	.2357	.0945	.2074	.3970
16	LOUIS.	10652.00	.2230	.2494	.3247	.2629	.1992	.1639	.4630	.4230
17	MAINE	3074.00	.1057	.4477	.7127	.4072	.0073	.0162	.0066	.2310
18	MD.-D.C.	13427.00	.1200	.2411	.3701	.3019	.1725	.1059	.4135	.4100
19	MASS.	11703.00	.1029	.1909	.5053	.3176	.2452	.0745	.0543	.2300
20	MICHIGAN	21004.00	.0502	.2454	.5262	.3713	.1637	.0369	.1356	.3040
21	MINN.	12196.00	.0795	.3530	.5642	.4177	.2574	.0496	.1004	.3160
22	MISS.	9731.00	.2472	.4471	.5099	.2764	.2246	.1353	.3493	.4320
23	MISSOURI	16729.00	.1205	.2292	.4466	.2907	.2200	.0736	.4119	.3270
24	MONTANA	2954.00	.1502	.3544	.7730	.5907	.0970	.0114	.0935	.3600
25	NEBRASKA	6202.00	.0926	.2229	.6309	.5202	.2525	.0429	.4744	.2960
26	NEVADA	3705.00	.3672	.4765	.6505	.3494	.1227	.0230	.5626	.6060
27	NEW HMP.	2511.00	.1277	.3900	.7060	.4394	.1792	.0402	.0261	.3010
28	NEW JER.	16071.00	.0752	.1573	.3119	.2557	.2707	.1720	.1910	.2090
29	NEW MEX.	2707.00	.0690	.1059	.3746	.3120	.1499	.0220	.4426	.4330
30	NY-EAST	10690.00	.0459	.1142	.2700	.3204	.2209	.1226	.0621	.3040
31	NY-WEST	11950.00	.0459	.1142	.2700	.1407	.2200	.1227	.0621	.1020
32	N. CARO.	25789.00	.2090	.0130	.0290	.2770	.2232	.0654	.3063	.4430
33	N. DAK.	2601.00	.1719	.5107	.7766	.6342	.2410	.0219	.1400	.2950
34	OHIO	33420.00	.1300	.2945	.5636	.4917	.1096	.0534	.2273	.3020
35	OKLAHOMA	12639.00	.1542	.2045	.4465	.3220	.2790	.0909	.4440	.4060
36	OREGON	13941.00	.4204	.0346	.9212	.7109	.0915	.0100	.0704	.4100
37	PA-EAST	15013.00	.1039	.2776	.4740	.5343	.1009	.1027	.1247	.2070
38	PA-WEST	15013.00	.1039	.2776	.4740	.2290	.1010	.1026	.1247	.1740
39	RH. ISL.	1006.00	.0634	.1510	.5073	.3325	.2179	.0603	.0407	.2410
40	S. CARO.	14120.00	.3090	.7046	.7775	.2613	.2355	.0700	.3701	.4400
41	SO. DAK.	2488.00	.1530	.4900	.6094	.5399	.3119	.0270	.2510	.2650
42	TENN.	25429.00	.4092	.7861	.0496	.4360	.2770	.1217	.3331	.4370
43	TEXAS	59074.00	.2532	.2486	.4440	.2094	.1000	.1210	.5265	.4400
44	UTAH	3476.00	.1023	.1977	.7047	.4610	.1561	.0220	.3045	.4160
45	VERMONT	1601.00	.0962	.5120	.6710	.4626	.0014	.0136	.0060	.2630
46	VIRGINIA	20447.00	.2533	.5752	.6551	.3431	.1095	.0920	.3647	.4400
47	WASH.	27101.00	.5247	.0602	.9452	.7209	.0690	.0107	.0607	.4310
48	WEST VA.	6546.00	.1060	.4097	.5262	.4753	.1919	.0582	.1421	.3230
49	WISCONS.	13966.00	.0645	.3556	.5691	.4721	.2147	.0391	.1274	.2920
50	WYOMING	1719.00	.1006	.2127	.6112	.5200	.1140	.0157	.0712	.3770

837 -- ADDABBO - HEINZ SCENARIO

FRI, MAY 13, 1983, 3:37 PM

BASE YEAR VALUE ADDED BY 2-DIGIT SIC

($1981)

YEAR	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1 AL	770.60	722.60	570.00	1060.40	926.50	97.10	732.90	309.30	1260.60	702.00	374.00	560.40	499.00	1341.70
2 AZ	199.60	.00	141.20	56.40	165.90	.00	.00	241.20	307.70	147.30	860.00	854.00	394.70	745.50
3 AR	721.90	101.10	549.60	512.00	420.50	71.70	333.40	174.00	800.60	370.20	413.00	783.30	130.40	1030.90
4 CA	7937.10	346.40	2461.70	1505.90	3563.40	2844.00	2010.90	2039.90	1443.00	4267.00	7307.00	9110.90	9459.40	10763.40
5 CO	903.20	.00	111.90	60.90	169.60	44.00	234.60	96.10	260.00	399.50	740.00	312.30	335.00	1654.40
6 CT	426.20	.00	.00	290.50	991.20	30.60	340.40	810.10	665.60	1414.70	2000.00	1432.50	2316.10	2359.00
7 DE	367.70	10.00	.00	.00	571.00	.00	111.40	25.50	.00	35.40	39.00	37.00	.00	944.20
8 FL	2170.70	60.60	453.30	650.30	1107.60	60.90	275.70	404.90	155.90	732.20	700.00	1606.30	909.50	2236.60
9 GA	1722.00	2500.50	736.50	1177.90	1331.20	73.70	396.40	511.40	451.00	800.00	845.00	715.00	1197.00	2394.70
10 ID	431.10	.00	570.30	.00	229.60	.00	60.00	73.60	.00	196.50	.00	.00	31.50	325.90
11 IL	5445.00	91.10	344.90	1109.00	4410.60	1340.40	1515.20	925.10	3410.40	4409.30	9042.00	5546.70	1765.30	7232.00
12 IN	1062.90	27.00	562.20	467.90	2274.90	431.90	906.30	610.60	3740.20	1913.90	3031.00	4360.90	3593.00	2274.20
13 IA	2142.20	23.50	159.90	107.10	939.70	.00	453.60	285.20	861.60	623.70	3255.00	1030.30	104.00	966.40
14 KS	870.90	.00	93.90	163.30	557.60	331.30	262.70	351.00	70.60	247.30	912.00	303.30	1322.60	715.30
15 KY	1149.10	103.40	233.90	240.40	1007.40	.00	407.60	.00	631.60	575.20	1605.00	1307.10	1100.10	2709.90
16 LA	1002.10	36.70	362.50	765.10	3766.70	1613.30	.00	253.10	300.90	373.60	380.00	400.60	572.00	514.10
17 ME	251.00	176.50	303.40	850.20	46.20	12.30	86.00	27.60	.00	65.90	179.00	171.00	106.90	545.90
18 MD	1211.50	21.60	49.70	363.00	767.70	54.00	124.00	291.50	947.70	344.20	890.00	1094.10	564.50	1302.20
19 MA	925.30	576.00	116.10	915.40	895.00	75.80	863.70	323.00	390.30	1370.70	3973.00	2900.60	762.60	5543.70
20 MI	2436.60	90.40	396.20	905.70	2634.30	227.60	1010.00	765.00	3090.60	4017.40	6226.00	1697.40	13490.30	3225.00
21 MN	1725.40	33.90	452.40	696.90	449.30	203.50	313.30	393.30	230.53	941.60	2793.00	1119.20	201.10	1043.70
22 MS	540.60	122.30	585.10	341.00	403.50	.00	67.50	225.90	95.50	291.00	437.00	632.30	672.00	1704.00
23 MO	1971.60	7.90	210.30	413.30	1010.00	165.00	321.50	460.00	596.40	987.60	1100.00	1320.10	3536.00	2275.90
24 MT	142.30	.00	352.90	.00	32.20	70.50	.00	44.70	.00	20.90	7.00	7.10	.00	206.70
25 NE	1022.90	.00	62.00	.00	260.10	13.70	.00	81.00	133.40	261.60	494.00	309.00	134.70	625.10
26 NV	86.50	.00	25.40	.00	64.60	.00	.00	.00	19.20	.00	.00	.00	7.00	407.70
27 NH	139.10	106.10	122.20	221.70	45.60	.00	175.40	70.90	67.00	127.10	759.00	473.00	40.50	505.30
28 NJ	2462.00	460.10	133.00	1009.00	9676.40	360.10	1141.50	950.50	673.70	1727.30	2177.00	2340.70	935.00	2227.00
29 NM	.00	.00	.00	1.00	20.00	85.50	6.90	63.10	.00	25.70	.00	181.20	43.00	489.30
30 N1	2163.00	392.00	282.00	940.70	2314.50	95.60	550.90	675.03	1090.00	1469.60	3511.00	3350.00	1427.50	12619.30
31 N2	1302.90	250.60	129.20	601.50	1479.00	61.10	357.30	432.10	697.40	939.20	2244.00	2141.00	912.70	8060.00
32 NC	1223.10	4464.40	671.30	733.00	2110.90	.00	761.90	469.70	275.40	1007.00	1262.00	1790.00	339.60	6192.40
33 ND	137.00	.00	.00	.00	6.00	.00	.00	32.60	.00	7.00	139.00	3.10	.00	105.60
34 OH	3359.70	161.90	360.60	1266.50	4074.60	532.50	2024.00	1079.40	5575.30	5794.90	7642.00	4612.00	6417.20	3735.00
35 OK	456.30	27.30	56.30	112.20	169.60	307.60	422.70	109.30	143.40	560.40	1190.00	622.70	204.20	804.20
36 OR	747.10	.00	2901.50	504.20	122.90	41.10	.00	.00	377.00	396.10	500.00	242.70	410.50	994.20
37 P1	1096.60	436.50	262.00	860.70	1705.00	430.50	595.50	830.10	3105.00	1541.90	2331.00	1962.10	1120.90	3306.60
38 P2	1096.60	436.50	262.00	860.70	1705.00	430.50	595.50	830.10	3105.00	1541.90	2331.00	1962.10	1120.90	3306.60
39 RI	135.30	254.20	10.60	69.70	.00	.00	152.50	60.00	222.10	315.00	209.00	116.20	.00	1435.00
40 SC	369.60	2616.90	407.40	532.60	1007.60	16.00	491.00	346.10	130.10	431.40	806.00	846.00	51.70	1214.90
41 SD	210.50	.00	54.30	.00	.00	.00	.00	56.40	.00	33.40	122.00	61.90	15.00	200.00
42 TN	1500.60	422.50	316.00	690.70	2751.50	104.90	840.90	531.00	570.20	801.60	1315.00	1322.60	732.00	2735.00
43 TX	3792.10	159.20	906.30	755.00	8030.90	3539.00	830.50	1267.00	1711.90	2209.60	5490.00	2750.00	1770.60	3022.70
44 UT	191.70	.00	75.00	27.50	.00	124.50	.00	153.60	.00	152.00	445.00	193.00	237.90	833.10
45 VT	62.30	8.20	87.60	99.70	17.10	.00	.00	50.20	29.50	120.00	240.00	410.00	39.10	290.00
46 VA	1436.30	893.70	523.60	654.30	1051.50	.00	494.20	142.90	293.50	453.70	600.00	1146.90	900.60	3010.00
47 WA	1313.20	19.80	1650.30	745.70	475.30	194.90	134.40	246.70	993.30	330.90	516.00	210.50	2500.60	854.90
48 WV	165.50	12.40	107.20	38.40	1540.60	40.40	.00	462.90	955.40	204.50	105.00	203.30	112.60	411.00
49 WI	2547.00	136.00	626.00	2054.20	631.50	61.20	559.00	271.90	796.90	1667.10	4012.00	1049.70	1507.20	2135.50
50 WY	42.00	.00	.00	.00	80.60	130.30	.00	52.20	.00	.00	.00	.00	.00	100.30

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#37 -- ADDABBO - HEINZ SCENARIO                                         FRI, MAY 13, 1983,  3:37 PM

  BASE YEAR DATA -- INDUSTRIAL ELECTRIC MODEL
  -------------------------------------------
                              ---------INDUSTRIAL---------
                      1981       1980       1980       1980
                INDUSTRIAL        GAS        GAS PETROLEUM
        STATE        SALES      SHARE      PRICE      PRICE
     --------    ---------   --------   --------   --------
                     (KWH)    (RATIO) ($/MMBTU)    (INDEX)
  1 ALABAMA       26321.00      .2541       3.00
  2 ARIZONA        8429.00      .2695       3.53
  3 ARKANSAS       8980.00      .3562       3.15
  4 CALIF.        50010.00      .3471       3.53
  5 COLORADO       5019.00      .3019       3.24
  6 CONN.          6096.00      .1010       4.27
  7 DELAWARE       2391.00      .0991       3.40
  8 FLORIDA       17395.00      .1709       3.00
  9 GEORGIA       19675.00      .2609       3.00
 10 IDAHO          6372.00      .3522       3.95
 11 ILLINOIS      34716.00      .3262       3.43
 12 INDIANA       25606.00      .2755       3.43
 13 IOWA           9537.00      .3001       2.79
 14 KANSAS         6454.00      .3521       2.79
 15 KENTUCKY      19700.00      .1335       3.00
 16 LOUIS.        26094.00      .5110       3.15
 17 MAINE          3257.00      .0069       4.27
 18 MD.-D.C.      16673.00      .1762       3.40
 19 MASS.          8714.00      .1104       4.27
 20 MICHIGAN      29191.00      .2650       3.43
 21 MINN.         15253.00      .2505       3.43
 22 MISS.          8053.00      .3704       3.00
 23 MISSOURI       9496.00      .2597       2.79
 24 MONTANA        5702.00      .3410       3.24
 25 NEBRASKA       3206.00      .3430       2.79
 26 NEVADA         4373.00      .2235       3.53
 27 NEW HMP.       2340.00      .0336       4.27
 28 NEW JER.      16239.00      .1439       3.97
 29 NEW MEX.       2035.00      .0000       3.15
 30 NY-EAST       19969.00      .1537       3.97
 31 NY-WEST       12767.00      .1536       3.97
 32 N. CARO.      23043.00      .1363       3.00
 33 N. DAK.        1007.00      .0905       3.24
 34 OHIO          54494.00      .2602       3.43
 35 OKLAHOMA       8790.00      .5145       3.15
 36 OREGON        14367.00      .2997       3.95
 37 PA-EAST       23316.00      .2320       3.40
 38 PA-WEST       23316.00      .2320       3.40
 39 RH. ISL.       1360.00      .1104       4.27
 40 S. CARO.      17017.00      .2451       3.00
 41 SO. DAK.        606.00      .2646       3.24
 42 TENN.         39933.00      .1652       3.00
 43 TEXAS         70346.00      .5500       3.15
 44 UTAH           3930.00      .3100       3.24
 45 VERMONT        1334.00      .1052       4.27
 46 VIRGINIA      11005.00      .1060       3.40
 47 WASH.         33750.00      .3467       3.95
 48 WEST VA.      10400.00      .2714       3.40
 49 WISCONS.      13699.00      .3290       3.43
 50 WYOMING        3344.00      .6695       3.24
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037 -- ADDABBO - HEINZ SCENARIO

  BASE YEAR DATA -- COMMERCIAL ELECTRIC MODEL
  -------------------------------------------
                           ----COMMERCIAL----
                     1981      1980      1980
               COMMERCIAL       GAS       GAS
        STATE       SALES     SHARE     PRICE
     --------    --------  --------  --------
                    (KWH)   (RATIO) ($/MMBTU)
   1 ALABAMA      7205.00     .3458      3.46
   2 ARIZONA      9827.00     .7041      3.70
   3 ARKANSAS     5606.00     .2660      3.44
   4 CALIF.      57087.00     .6665      3.70
   5 COLORADO     9057.00     .5439      3.00
   6 CONN.        6925.00     .2511      5.17
   7 DELAWARE     1270.00     .1760      4.02
   8 FLORIDA     27605.00     .3416      3.46
   9 GEORGIA     14803.00     .4584      3.46
  10 IDAHO        4512.00     .4207      4.67
  11 ILLINOIS    27086.00     .4103      3.76
  12 INDIANA     10622.00     .2705      3.76
  13 IOWA         5400.00     .5590      3.21
  14 KANSAS       7434.00     .4361      3.21
  15 KENTUCKY    13516.00     .4552      3.46
  16 LOUIS.      11'45.00     .4017      3.44
  17 MAINE        161[illegible].00     .0199      5.17
  18 MD.-D.C.    11823.00     .2937      4.02
  19 MASS.       11600.00     .1079      5.17
  20 MICHIGAN    15307.00     .5201      3.76
  21 MINN.        6960.00     .5066      3.76
  22 MISS.        5119.00     .1950      3.46
  23 MISSOURI    13050.00     .5010      3.21
  24 MONTANA      2203.00     .6153      3.00
  25 NEBRASKA     5354.00     .5022      3.21
  26 NEVADA       1047.00     .7247      3.70
  27 NEW HMP.     1141.00     .0765      5.17
  28 NEW JER.    16706.00     .1030      4.67
  29 NEW MEX.     4195.00     .4064      3.44
  30 NY-EAST     20464.00     .1717      4.67
  31 NY-WEST     13003.00     .1717      4.67
  32 N. CARO.    14015.00     .329[illegible]      3.46
  33 N. DAK.      1726.00     .7704      3.00
  34 OHIO        22692.00     .6104      3.76
  35 OKLAHOMA     9356.00     .4076      3.44
  36 OREGON       9930.00     .3470      4.67
  37 PA-EAST     10450.00     .2627      4.02
  38 PA-WEST     10450.00     .2627      4.02
  39 RH. ISL.     1675.00     .1256      5.17
  40 S. CARO.     8041.00     .4569      3.46
  41 SO. DAK.     1550.00     .5075      3.00
  42 TENN.        4713.00     .3837      3.46
  43 TEXAS       45961.00     .2672      3.44
  44 UTAH         3989.00     .1516      3.00
  45 VERMONT       714.00     .0632      5.17
  46 VIRGINIA    13300.00     .4206      4.02
  47 WASH.       13815.00     .5102      4.67
  48 WEST VA.     3020.00      7541      4.02
  49 WISCONS.     9545.00     .5769      3.76
  50 WYOMING      3120.00     .1493      3.00
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037 -- ADDABBO - HEINZ SCENARIO   FRI, MAY 13, 1983, 3:37 PM

BASE YEAR ENERGY COEFFICIENTS BY 2-DIGIT SIC

YEAR	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
	(KWH/$1972 VALUE ADDED)													
1 AL	1.28	3.65	1.45	3.62	8.71	.00	1.76	4.02	9.03	.93	1.00	.98	.02	.04
2 AZ	1.46	.00	1.12	.00	2.73	.00	.00	1.79	5.05	.66	.00	.93	.58	.79
3 AR	1.70	1.09	1.94	3.23	2.06	2.50	1.77	2.19	19.71	1.07	.00	.00	.53	.60
4 CA	.76	1.00	1.05	1.01	1.72	3.67	1.32	2.05	2.62	.72	.00	.56	.52	.40
5 CO	.76	.00	.72	1.27	1.46	.00	.00	6.34	3.74	1.30	.00	.57	.49	.64
6 CT	.64	.00	.00	1.56	.77	1.06	1.63	.73	1.09	.50	.00	.49	.50	.45
7 DE	.67	3.06	.00	.00	3.31	.00	.00	.00	.00	1.05	1.00	.00	.00	1.20
8 FL	1.02	1.20	.89	1.30	5.35	.00	1.30	2.00	4.35	.72	.00	.00	.60	1.17
9 GA	1.01	2.39	1.29	3.45	2.40	.93	2.07	2.00	2.01	1.07	.00	.06	.62	.66
10 ID	2.01	.00	1.25	.00	21.42	.00	.00	.90	.00	.00	.00	.00	.00	4.10
11 IL	.07	.05	.63	1.39	1.40	2.52	1.63	1.07	3.40	.75	.00	.50	.60	.41
12 IN	1.01	.00	.01	2.01	2.42	1.20	1.72	2.06	4.20	.05	.00	.71	.72	.56
13 IA	1.44	.00	.40	1.60	1.01	.00	1.44	2.47	5.24	.64	.00	.54	.59	.49
14 KS	1.31	.00	.61	.95	3.94	3.22	2.29	2.74	3.10	.62	.00	1.05	.44	.55
15 KY	.64	2.71	.98	2.79	23.67	.00	1.73	.00	16.11	.04	.00	.02	.40	.67
16 LA	.89	1.71	2.49	4.57	6.33	3.22	.00	2.32	2.27	.60	.00	.70	.62	.75
17 ME	1.32	1.16	.94	2.91	.00	.00	1.41	3.46	.00	1.01	.00	.04	.00	1.44
18 MD	.77	.97	1.00	1.33	1.96	.92	3.63	2.72	5.95	1.03	.00	.54	.65	.54
19 MA	.72	1.00	.43	1.53	1.06	.99	1.59	.97	1.59	.61	.00	.52	.56	.30
20 MI	.65	.00	1.00	2.36	1.62	1.70	1.61	2.00	3.65	.79	.00	.53	.05	.42
21 MN	1.00	1.11	1.31	2.21	.93	2.02	1.45	1.43	3.10	.63	.00	.52	.25	.45
22 MS	1.63	1.50	2.42	1.42	5.22	.00	5.49	2.74	.00	.00	.00	.75	.60	.94
23 MO	.91	1.02	.00	1.06	.98	.05	1.94	3.16	7.52	.92	.00	.73	.43	.58
24 MT	1.09	.00	1.75	.00	.00	5.45	.00	3.30	.00	.00	.00	.00	.00	27.23
25 NE	1.23	.00	.00	.00	2.96	.00	.00	2.55	3.02	.64	.00	.59	.00	.74
26 NV	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	2.72
27 NH	1.09	1.47	.90	2.42	1.01	.00	1.30	.93	.00	.50	.00	.47	.00	.92
28 NJ	.75	.92	.97	1.63	.70	3.55	1.63	1.95	2.05	.00	.00	.64	.54	.07
29 NM	.00	.00	.00	.00	.00	.00	.00	1.92	.00	.00	.00	.00	.00	2.13
30 N1	1.05	.90	1.20	2.02	1.46	3.21	1.62	2.27	6.03	.75	.00	.00	.01	.29
31 N2	1.05	.90	1.20	2.02	1.46	3.21	1.62	2.27	6.03	.75	.00	.00	.01	.29
32 NC	1.15	2.70	1.76	2.39	2.60	.00	1.05	2.37	.00	.63	.00	.92	.00	1.11
33 ND	3.51	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	1.11
34 OH	.79	.09	.03	2.04	7.39	3.59	1.59	1.04	4.49	.04	.00	.61	.76	.44
35 OK	1.41	2.51	4.11	.00	6.20	4.27	1.79	4.09	5.00	.62	.00	.44	.00	1.67
36 OR	1.51	.00	1.50	9.63	12.03	.00	.00	.00	19.31	.57	.00	.67	.42	1.12
37 P1	.00	1.10	1.20	1.70	1.30	2.27	1.62	2.62	2.90	.70	.00	.01	.57	.50
38 P2	.00	1.10	1.20	1.70	1.30	2.27	1.62	2.62	2.90	.70	.00	.01	.57	.50
39 RI	.64	1.40	.00	1.11	.00	.00	1.41	1.09	1.59	.04	.00	1.49	.00	.43
40 SC	1.63	3.45	2.24	4.94	2.99	.00	2.27	3.00	13.20	.79	1.00	1.10	1.11	.79
41 SD	1.25	.00	.73	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	1.14
42 TN	1.17	2.79	1.72	3.01	8.41	.00	1.70	3.19	16.70	1.02	.00	1.19	.02	.74
43 TX	1.09	2.44	1.30	3.49	4.00	2.64	1.94	2.52	8.66	.93	.00	.72	.66	.55
44 UT	1.44	.00	.54	.00	.00	2.21	.00	1.66	.00	.59	.00	.53	.54	1.02
45 VT	1.57	.00	1.24	1.79	.00	.00	.00	.93	.00	.31	.00	.00	.00	1.95
46 VA	.94	1.90	1.92	2.52	1.94	.00	1.63	4.71	2.90	.02	.00	.50	.62	.73
47 WA	1.12	.00	1.12	10.34	7.20	6.12	.00	2.53	24.94	1.03	.00	.59	.47	.76
48 WV	.67	.00	1.07	1.17	4.23	3.27	.00	1.70	6.92	.02	.00	2.92	.00	1.03
49 WI	.93	.94	.93	2.66	1.20	.00	1.20	1.10	2.39	.79	.00	.60	.50	.57
50 WY	1.09	.00	.00	.00	.00	1.44	.00	1.67	.00	.00	.00	.00	.00	1.45

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#37 -- ADDABBO - HEINZ SCENARIO                                                                          FRI, MAY 13, 1983,  3:37 PM

ALABAMA  (REGION=South Atlantic       )

                                                        DEMOGRAPHIC DATA
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                                                                               --RATIO OF TOTAL COMMERCIAL ACTIVITY--
                                                                    URBAN      --------------------------------------   NON-MFG/
                        HOUSE-   PERSONAL                                                                                TOT EARN
    YEAR     PEOPLE     HOLDS     INCOME  INCOME/HH       APTS      RATIO     MINING  AGRICULT      TRANSP CONSTRUCT
  --------  --------  --------  --------   --------   --------   --------   --------  --------    --------  --------   --------
                               ($000,000) ($1981/HH) ---------------------------(RATIOS)-----------------------------------------
     1981    3919015   1367955     32198      23537      .0945     1.0000      .0105     .0429       .0842     .0793      .7167
     1982    3947232   1395450     31715      22727      .0959     1.0000      .0102     .0416       .0840     .0791      .7176
     1983    3975653   1423499     32666      22948      .0974     1.0000      .0100     .0404       .0837     .0788      .7186
     1984    4004277   1452112     34104      23486      .0988     1.0000      .0097     .0392       .0834     .0786      .7195
     1985    4033109   1481299     35468      23944      .1002     1.0000      .0095     .0381       .0831     .0784      .7205
     1986    4057710   1503074     36630      24376      .1017     1.0000      .0092     .0370       .0828     .0782      .7214
     1987    4082462   1525169     37847      24815      .1031     1.0000      .0090     .0359       .0825     .0780      .7224
     1988    4107365   1547589     39096      25263      .1048     1.0000      .0088     .0349       .0822     .0777      .7233
     1989    4132420   1570339     40387      25718      .1063     1.0000      .0086     .0339       .0819     .0775      .7242
     1990    4157628   1593422     41719      26182      .1079     1.0000      .0084     .0329       .0817     .0773      .7252
     1991    4180078   1613180     42888      26586      .1095     1.0000      .0082     .0319       .0815     .0771      .7262
     1992    4202651   1633183     44088      26995      .1113     1.0000      .0080     .0310       .0813     .0769      .7272
     1993    4225345   1653435     45323      27411      .1129     1.0000      .0078     .0301       .0811     .0767      .7282
     1994    4248162   1673937     46592      27834      .1147     1.0000      .0076     .0292       .0809     .0765      .7292
     1995    4271101   1694693     47896      28263      .1165     1.0000      .0075     .0283       .0807     .0763      .7302
     1996    4294165   1715708     49238      28698      .1183     1.0000      .0073     .0275       .0805     .0761      .7312
     1997    4317353   1736982     50616      29140      .1201     1.0000      .0071     .0267       .0803     .0759      .7322
     1998    4340667   1758520     52034      29589      .1218     1.0000      .0070     .0259       .0801     .0757      .7333
     1999    4364105   1780326     53490      30045      .1238     1.0000      .0068     .0251       .0799     .0755      .7343
     2000    4387671   1802402     54988      30508      .1257     1.0000      .0066     .0244       .0797     .0753      .7353


ANNUAL RATES OF GROWTH
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1981-1985         .72%     2.01%     2.45%       .43%      1.47%       .00%     -2.47%    -2.92%       -.33%     -.28%       .13%
1985-1990         .61%     1.47%     3.30%      1.80%      1.49%       .00%     -2.43%    -2.89%       -.34%     -.28%       .13%
1990-1995         .54%     1.24%     2.80%      1.54%      1.55%       .00%     -2.24%    -2.97%       -.25%     -.26%       .14%
1995-2000         .54%     1.24%     2.80%      1.54%      1.53%       .00%     -2.52%    -2.92%       -.25%     -.26%       .14%

1981-2000         .60%     1.46%     2.86%      1.37%      1.51%       .00%     -2.41%    -2.93%       -.29%     -.27%       .13%
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#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

ALABAMA (REGION=South Atlantic)

ENERGY PRICES

	GAS			ELECTRIC			PETROLEUM				
YEAR	RESIDENT	COMMERC	INDUSTR	RESIDENT	COMMERC	INDUSTR	RESIDENT	COMMERC	INDUSTR	COAL	LPG
	($1981/MMBTU)			($1981/KWH)	(INDEX)		($1981/GAL)	(INDEX)		(INDEX)	($1981/GAL)
1981	4.51	3.62	3.28	.0524	.0517	.0368	1.2050	100.00	100.00	100.00	.4800
1982	5.07	4.18	3.84	.0598	.0590	.0420	1.1027	91.51	91.51	103.00	.5050
1983	5.20	4.31	3.97	.0593	.0585	.0416	.9820	81.49	81.49	106.09	.5312
1984	5.14	4.25	3.91	.0625	.0617	.0439	.9538	79.15	79.15	109.27	.5588
1985	4.98	4.09	3.75	.0633	.0625	.0445	.9376	77.81	77.81	112.55	.5879
1986	4.99	4.10	3.76	.0652	.0643	.0458	.9442	78.36	78.36	115.93	.6185
1987	5.22	4.33	3.99	.0637	.0628	.0447	.9508	78.91	78.91	119.41	.6506
1988	5.63	4.74	4.40	.0668	.0659	.0469	.9575	79.46	79.46	122.99	.6845
1989	6.08	5.19	4.85	.0681	.0672	.0479	.9642	80.01	80.01	126.68	.7201
1990	6.41	5.52	5.18	.0701	.0691	.0492	.9709	80.58	80.58	130.48	.7575
1991	6.57	5.68	5.34	.0697	.0687	.0489	.9826	81.54	81.54	134.39	.7969
1992	6.56	5.67	5.33	.0736	.0726	.0517	.9944	82.52	82.52	138.42	.8383
1993	6.51	5.62	5.28	.0684	.0675	.0480	1.0063	83.51	83.51	142.58	.8819
1994	6.59	5.70	5.36	.0749	.0739	.0526	1.0184	84.51	84.51	146.85	.9278
1995	6.73	5.84	5.50	.0678	.0669	.0477	1.0306	85.53	85.53	151.26	.9760
1996	6.96	6.07	5.73	.0740	.0730	.0520	1.0512	87.24	87.24	155.80	1.0268
1997	7.19	6.30	5.96	.0688	.0679	.0484	1.0722	88.98	88.98	160.47	1.0802
1998	7.42	6.53	6.19	.0745	.0735	.0524	1.0937	90.76	90.76	165.28	1.1363
1999	7.69	6.80	6.46	.0691	.0681	.0485	1.1156	92.58	92.58	170.24	1.1954
2000	7.98	7.09	6.75	.0735	.0725	.0517	1.1379	94.43	94.43	175.35	1.2576

ANNUAL RATES OF GROWTH

1981-1985	2.51%	3.10%	3.40%	4.84%	4.83%	4.83%	-6.08%	-6.08%	-6.08%	3.00%	5.20%
1985-1990	5.18%	6.18%	6.67%	2.05%	2.05%	2.05%	.70%	.70%	.70%	3.00%	5.20%
1990-1995	.98%	1.13%	1.21%	-.65%	-.65%	-.65%	1.20%	1.20%	1.20%	3.00%	5.20%
1995-2000	3.47%	3.96%	4.18%	1.62%	1.63%	1.62%	2.00%	2.00%	2.00%	3.00%	5.20%
1981-2000	3.05%	3.60%	3.87%	1.80%	1.80%	1.80%	-.30%	-.30%	-.30%	3.00%	5.20%

#37 -- ADDABBO - HEINZ SCENARIO

FRI, MAY 13, 1983, 3:37 PM

ALABAMA (REGION=South Atlantic)

VALUE ADDED INDEXES BY 2-DIGIT SIC

YEAR	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1981	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1982	.99	.89	.91	.93	.88	1.01	.90	.85	.65	.82	.81	.95	.95	.92
1983	1.01	.93	.94	.97	.92	1.02	.95	.88	.69	.85	.86	1.00	.98	.98
1984	1.04	.97	.97	1.01	.95	1.04	1.00	.92	.73	.89	.91	1.05	1.01	1.04
1985	1.07	1.01	1.01	1.05	.99	1.05	1.06	.96	.77	.92	.96	1.10	1.04	1.10
1986	1.10	1.06	1.05	1.10	1.05	1.05	1.13	1.01	.81	.96	1.02	1.18	1.09	1.14
1987	1.12	1.11	1.09	1.15	1.11	1.05	1.20	1.07	.84	1.00	1.08	1.26	1.14	1.17
1988	1.15	1.17	1.13	1.20	1.18	1.05	1.28	1.14	.87	1.04	1.15	1.34	1.19	1.21
1989	1.18	1.23	1.17	1.26	1.25	1.05	1.36	1.21	.91	1.08	1.22	1.43	1.24	1.25
1990	1.21	1.29	1.22	1.32	1.32	1.05	1.45	1.28	.94	1.12	1.29	1.53	1.30	1.29
1991	1.24	1.34	1.26	1.36	1.38	1.05	1.54	1.33	.98	1.15	1.35	1.60	1.33	1.33
1992	1.27	1.40	1.30	1.41	1.43	1.05	1.64	1.39	1.01	1.19	1.41	1.67	1.36	1.36
1993	1.31	1.46	1.34	1.46	1.49	1.05	1.75	1.45	1.05	1.22	1.47	1.75	1.39	1.40
1994	1.34	1.52	1.38	1.50	1.54	1.05	1.86	1.51	1.09	1.25	1.54	1.83	1.42	1.44
1995	1.38	1.59	1.43	1.56	1.60	1.04	1.98	1.57	1.12	1.29	1.61	1.91	1.45	1.48
1996	1.41	1.66	1.47	1.61	1.67	1.04	2.08	1.62	1.16	1.32	1.68	2.00	1.48	1.52
1997	1.45	1.73	1.52	1.66	1.74	1.04	2.18	1.68	1.21	1.36	1.76	2.09	1.51	1.56
1998	1.49	1.80	1.57	1.72	1.81	1.04	2.28	1.73	1.25	1.40	1.84	2.18	1.55	1.60
1999	1.53	1.88	1.62	1.78	1.88	1.04	2.39	1.79	1.29	1.44	1.92	2.28	1.58	1.65
2000	1.56	1.96	1.67	1.84	1.96	1.03	2.51	1.85	1.34	1.48	2.00	2.38	1.62	1.70

ANNUAL RATES OF GROWTH

1981-1985	1.71%	.25%	.25%	1.23%	-.25%	1.23%	1.47%	-1.02%	-6.33%	-2.06%	-1.02%	2.41%	.99%	2.41%
1985-1990	2.49%	5.02%	3.85%	4.66%	5.92%	.00%	6.47%	5.92%	4.07%	4.01%	6.09%	6.82%	4.56%	3.24%
1990-1995	2.66%	4.27%	3.23%	3.40%	3.92%	-.19%	6.43%	4.17%	3.57%	2.87%	4.53%	4.54%	2.21%	2.79%
1995-2000	2.48%	4.27%	3.15%	3.36%	4.14%	-.19%	4.86%	3.34%	3.65%	2.79%	4.43%	4.50%	2.24%	2.81%
1981-2000	2.37%	3.61%	2.74%	3.26%	3.61%	.16%	4.96%	3.29%	1.55%	2.08%	3.72%	4.67%	2.57%	2.83%

#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

ALABAMA (REGION=South Atlantic)

WAGE INDEXES BY 2-DIGIT SIC

YEAR	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1981	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1982	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
1983	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
1984	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
1985	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08
1986	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
1987	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13
1988	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15
1989	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17
1990	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
1991	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22
1992	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24
1993	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27
1994	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29
1995	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32
1996	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35
1997	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37
1998	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40
1999	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43
2000	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46

ANNUAL RATES OF GROWTH

1981-1985	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1985-1990	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1990-1995	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1995-2000	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1981-2000	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%

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#37 -- ADDABBO - HEINZ SCENARIO                                                                  FRI, MAY 13, 1983,  3:37 PM

ARIZONA  (REGION=West                )

                                                  DEMOGRAPHIC DATA
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                                                                         --RATIO OF TOTAL COMMERCIAL ACTIVITY--
                           HOUSE-   PERSONAL                       URBAN  --------------------------------------  NON-MFG/
    YEAR      PEOPLE        HOLDS     INCOME  INCOME/HH     APTS    RATIO    MINING  AGRICULT    TRANSP CONSTRUCT  TOT EARN
 --------   --------     --------   --------   --------  --------  --------  --------  --------  --------  --------  --------
                                  ($000,000) ($1981/HH) ---------------------------(RATIOS)------------------------------
    1981    2785407       993271      27256      27441     .1632    1.0000     .0432     .0397     .0720     .0968     .0378
    1982    2854486      1030916      26847      26042     .1656    1.0000     .0423     .0384     .0721     .0963     .0381
    1983    2925276      1069988      27653      25844     .1679    1.0000     .0415     .0372     .0722     .0958     .0384
    1984    2997823      1110539      28869      25996     .1705    1.0000     .0407     .0360     .0723     .0953     .0388
    1985    3072169      1152629      30024      26048     .1728    1.0000     .0399     .0348     .0724     .0948     .0391
    1986    3122245      1181445      31015      26252     .1754    1.0000     .0391     .0337     .0725     .0943     .0394
    1987    3173138      1210982      32038      26456     .1780    1.0000     .0383     .0326     .0726     .0939     .0397
    1988    3224860      1241255      33096      26663     .1805    1.0000     .0376     .0316     .0727     .0934     .0400
    1989    3277424      1272288      34188      26871     .1832    1.0000     .0369     .0305     .0728     .0929     .0403
    1990    3330846      1304095      35316      27081     .1859    1.0000     .0361     .0295     .0729     .0925     .0406
    1991    3377145      1331350      36305      27269     .1885    1.0000     .0353     .0285     .0730     .0921     .0409
    1992    3424088      1359176      37321      27459     .1913    1.0000     .0346     .0276     .0731     .0917     .0412
    1993    3471683      1387583      38366      27650     .1941    1.0000     .0338     .0267     .0732     .0913     .0415
    1994    3519939      1416583      39441      27842     .1969    1.0000     .0331     .0258     .0733     .0909     .0418
    1995    3568867      1446189      40545      28036     .1997    1.0000     .0324     .0250     .0734     .0905     .0421
    1996    3618475      1476415      41680      28231     .2027    1.0000     .0317     .0242     .0735     .0901     .0424
    1997    3668772      1507271      42847      28427     .2056    1.0000     .0310     .0234     .0736     .0897     .0427
    1998    3719768      1538774      44047      28625     .2086    1.0000     .0303     .0226     .0737     .0894     .0430
    1999    3771473      1570934      45280      28824     .2116    1.0000     .0296     .0219     .0738     .0890     .0433
    2000    3823896      1603767      46548      29024     .2147    1.0000     .0290     .0211     .0739     .0886     .0436


ANNUAL RATES OF GROWTH
----------------------

1981-1985      2.48%      3.79%      2.45%     -1.29%     1.44%      .00%    -1.97%    -3.24%      .14%     -.52%      .04%
1985-1990      1.63%      2.50%      3.30%       .78%     1.47%      .00%    -1.98%    -3.25%      .14%     -.49%      .04%
1990-1995      1.39%      2.09%      2.80%       .70%     1.44%      .00%    -2.14%    -3.26%      .14%     -.44%      .04%
1995-2000      1.39%      2.09%      2.80%       .70%     1.46%      .00%    -2.19%    -3.34%      .14%     -.42%      .04%

1981-2000      1.68%      2.55%      2.86%       .30%     1.45%      .00%    -2.08%    -3.27%      .14%     -.46%      .04%
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#37 -- ADDABBO - HEINZ SCENARIO                                                              FRI, MAY 13, 1983,  3:37 PM

ARIZONA  (REGION=West                  )

                                                  ENERGY PRICES
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                               GAS                              ELECTRIC                              PETROLEUM
                 ----------------------------  ----------------------------  ----------------------------
    YEAR  RESIDENT   COMMERC   INDUSTR  RESIDENT   COMMERC   INDUSTR  RESIDENT   COMMERC   INDUSTR       COAL       LPG
--------  --------  --------  --------  --------  --------  --------  --------  --------  --------   --------  --------
          -------( $1981/MMBTU)-------($1981/KWH) ----( INDEX)------($1981/GAL) -----( INDEX)-----  ( INDEX)($1981/GAL)

    1981      4.31      3.40      2.73     .0626     .0680     .0546    1.2050    100.00    100.00     100.00     .4800
    1982      4.87      3.96      3.29     .0661     .0719     .0577    1.1027     91.51     91.51     103.00     .5050
    1983      5.00      4.09      3.42     .0660     .0718     .0576     .9820     81.49     81.49     106.09     .5312
    1984      4.94      4.03      3.36     .0780     .0847     .0680     .9538     79.15     79.15     109.27     .5588
    1985      4.78      3.87      3.20     .0818     .0889     .0714     .9376     77.81     77.81     112.55     .5879
    1986      4.79      3.88      3.21     .0794     .0863     .0693     .9442     78.36     78.36     115.93     .6185
    1987      5.02      4.11      3.44     .0819     .0890     .0715     .9508     78.91     78.91     119.41     .6506
    1988      5.43      4.52      3.85     .0777     .0844     .0678     .9575     79.46     79.46     122.99     .6845
    1989      5.88      4.97      4.30     .0810     .0880     .0706     .9642     80.01     80.01     126.68     .7201
    1990      6.21      5.30      4.63     .0781     .0849     .0682     .9709     80.58     80.58     130.48     .7575
    1991      6.37      5.46      4.79     .0801     .0870     .0698     .9826     81.54     81.54     134.39     .7969
    1992      6.36      5.45      4.78     .0799     .0868     .0697     .9944     82.52     82.52     138.42     .8383
    1993      6.31      5.40      4.73     .0719     .0781     .0627    1.0063     83.51     83.51     142.58     .8819
    1994      6.39      5.48      4.81     .0652     .0709     .0569    1.0184     84.51     84.51     146.85     .9278
    1995      6.53      5.62      4.95     .0826     .0898     .0721    1.0306     85.53     85.53     151.26     .9760
    1996      6.76      5.85      5.18     .0741     .0805     .0646    1.0512     87.24     87.24     155.80    1.0268
    1997      6.99      6.08      5.41     .0685     .0744     .0598    1.0722     88.98     88.98     160.47    1.0802
    1998      7.22      6.31      5.64     .0635     .0690     .0554    1.0937     90.76     90.76     165.28    1.1363
    1999      7.49      6.58      5.91     .0795     .0864     .0694    1.1156     92.58     92.58     170.24    1.1954
    2000      7.78      6.87      6.20     .0711     .0773     .0620    1.1379     94.43     94.43     175.35    1.2576


ANNUAL RATES OF GROWTH
----------------------

1981-1985     2.62%     3.29%     4.05%     6.91%     6.91%     6.91%    -6.08%    -6.08%    -6.08%      3.00%     5.20%
1985-1990     5.37%     6.49%     7.67%     -.91%     -.91%     -.91%      .70%      .70%      .70%      3.00%     5.20%
1990-1995     1.01%     1.18%     1.35%     1.12%     1.13%     1.12%     1.20%     1.20%     1.20%      3.00%     5.20%
1995-2000     3.57%     4.10%     4.61%    -2.96%    -2.96%    -2.96%     2.00%     2.00%     2.00%      3.00%     5.20%

1981-2000     3.16%     3.77%     4.41%      .67%      .67%      .67%     -.30%     -.30%     -.30%      3.00%     5.20%
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#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

ARIZONA (REGION=West)

VALUE ADDED INDEXES BY 2-DIGIT SIC

YEAR	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1981	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1982	.99	.89	.91	.93	.88	1.01	.90	.85	.65	.82	.81	.95	.95	.92
1983	1.01	.93	.94	.97	.92	1.02	.95	.88	.69	.85	.86	1.00	.98	.98
1984	1.04	.97	.97	1.01	.95	1.04	1.00	.92	.73	.89	.91	1.05	1.01	1.04
1985	1.07	1.01	1.01	1.05	.99	1.05	1.06	.96	.77	.92	.96	1.10	1.04	1.10
1986	1.10	1.06	1.05	1.10	1.05	1.05	1.13	1.01	.81	.96	1.02	1.18	1.09	1.14
1987	1.12	1.11	1.09	1.15	1.11	1.05	1.20	1.07	.84	1.00	1.08	1.26	1.14	1.17
1988	1.15	1.17	1.13	1.20	1.18	1.05	1.28	1.14	.87	1.04	1.15	1.34	1.19	1.21
1989	1.18	1.23	1.17	1.26	1.25	1.05	1.36	1.21	.91	1.08	1.22	1.43	1.24	1.25
1990	1.21	1.29	1.22	1.32	1.32	1.05	1.45	1.28	.94	1.12	1.29	1.53	1.30	1.29
1991	1.24	1.34	1.26	1.36	1.38	1.05	1.54	1.33	.98	1.15	1.35	1.60	1.33	1.33
1992	1.27	1.40	1.30	1.41	1.43	1.05	1.64	1.39	1.01	1.19	1.41	1.67	1.36	1.36
1993	1.31	1.46	1.34	1.46	1.49	1.05	1.75	1.45	1.05	1.22	1.47	1.75	1.39	1.40
1994	1.34	1.52	1.38	1.50	1.54	1.05	1.86	1.51	1.09	1.25	1.54	1.83	1.42	1.44
1995	1.38	1.59	1.43	1.56	1.60	1.04	1.98	1.57	1.12	1.29	1.61	1.91	1.45	1.48
1996	1.41	1.66	1.47	1.61	1.67	1.04	2.08	1.62	1.16	1.32	1.68	2.00	1.48	1.52
1997	1.45	1.73	1.52	1.66	1.74	1.04	2.18	1.68	1.21	1.36	1.76	2.09	1.51	1.56
1998	1.49	1.80	1.57	1.72	1.81	1.04	2.28	1.73	1.25	1.40	1.84	2.18	1.55	1.60
1999	1.53	1.88	1.62	1.78	1.88	1.04	2.39	1.79	1.29	1.44	1.92	2.28	1.58	1.65
2000	1.56	1.96	1.67	1.84	1.96	1.03	2.51	1.85	1.34	1.48	2.00	2.38	1.62	1.70

ANNUAL RATES OF GROWTH

1981-1985	1.71%	.25%	.25%	1.23%	-.25%	1.23%	1.47%	-1.02%	-6.33%	-2.06%	-1.02%	2.41%	.99%	2.41%
1985-1990	2.49%	5.02%	3.85%	4.68%	5.92%	.00%	6.47%	5.92%	4.07%	4.01%	6.09%	6.82%	4.56%	3.24%
1990-1995	2.66%	4.27%	3.23%	3.40%	3.92%	-.19%	6.43%	4.17%	3.57%	2.87%	4.53%	4.54%	2.21%	2.79%
1995-2000	2.48%	4.27%	3.15%	3.36%	4.14%	-.19%	4.86%	3.34%	3.65%	2.79%	4.43%	4.50%	2.24%	2.81%
1981-2000	2.37%	3.61%	2.74%	3.26%	3.61%	.16%	4.96%	3.29%	1.55%	2.08%	3.72%	4.67%	2.57%	2.83%

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#37 -- ADDABBO - HEINZ SCENARIO                                                          FRI, MAY 13, 1983,  3:37 PM

ARIZONA  (REGION=West                 )

                                              WAGE INDEXES BY 2-DIGIT SIC
                                              ---------------------------

                                                                              PRIMARY  FABRIC.            ELECTRIC
 YEAR      FOOD  TEXTILE   LUMBER     PAPER CHEMICAL    PETROL   RUBBER     STONE    METAL    METAL  MACHINE  MACHINE    TRANSP     OTHER
 ----   -------  -------  -------   -------  -------   -------  -------   -------  -------  -------  -------  -------   -------   -------
 1981      1.00     1.00     1.00      1.00     1.00      1.00     1.00      1.00     1.00     1.00     1.00     1.00      1.00      1.00
 1982      1.02     1.02     1.02      1.02     1.02      1.02     1.02      1.02     1.02     1.02     1.02     1.02      1.02      1.02
 1983      1.04     1.04     1.04      1.04     1.04      1.04     1.04      1.04     1.04     1.04     1.04     1.04      1.04      1.04
 1984      1.06     1.06     1.06      1.06     1.06      1.06     1.06      1.06     1.06     1.06     1.06     1.06      1.06      1.06
 1985      1.08     1.08     1.08      1.08     1.08      1.08     1.08      1.08     1.08     1.08     1.08     1.08      1.08      1.08
 1986      1.10     1.10     1.10      1.10     1.10      1.10     1.10      1.10     1.10     1.10     1.10     1.10      1.10      1.10
 1987      1.13     1.13     1.13      1.13     1.13      1.13     1.13      1.13     1.13     1.13     1.13     1.13      1.13      1.13
 1988      1.15     1.15     1.15      1.15     1.15      1.15     1.15      1.15     1.15     1.15     1.15     1.15      1.15      1.15
 1989      1.17     1.17     1.17      1.17     1.17      1.17     1.17      1.17     1.17     1.17     1.17     1.17      1.17      1.17
 1990      1.20     1.20     1.20      1.20     1.20      1.20     1.20      1.20     1.20     1.20     1.20     1.20      1.20      1.20
 1991      1.22     1.22     1.22      1.22     1.22      1.22     1.22      1.22     1.22     1.22     1.22     1.22      1.22      1.22
 1992      1.24     1.24     1.24      1.24     1.24      1.24     1.24      1.24     1.24     1.24     1.24     1.24      1.24      1.24
 1993      1.27     1.27     1.27      1.27     1.27      1.27     1.27      1.27     1.27     1.27     1.27     1.27      1.27      1.27
 1994      1.29     1.29     1.29      1.29     1.29      1.29     1.29      1.29     1.29     1.29     1.29     1.29      1.29      1.29
 1995      1.32     1.32     1.32      1.32     1.32      1.32     1.32      1.32     1.32     1.32     1.32     1.32      1.32      1.32
 1996      1.35     1.35     1.35      1.35     1.35      1.35     1.35      1.35     1.35     1.35     1.35     1.35      1.35      1.35
 1997      1.37     1.37     1.37      1.37     1.37      1.37     1.37      1.37     1.37     1.37     1.37     1.37      1.37      1.37
 1998      1.40     1.40     1.40      1.40     1.40      1.40     1.40      1.40     1.40     1.40     1.40     1.40      1.40      1.40
 1999      1.43     1.43     1.43      1.43     1.43      1.43     1.43      1.43     1.43     1.43     1.43     1.43      1.43      1.43
 2000      1.46     1.46     1.46      1.46     1.46      1.46     1.46      1.46     1.46     1.46     1.46     1.46      1.46      1.46


ANNUAL RATES OF GROWTH
----------------------

1981-1985 2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%
1985-1990 2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%
1990-1995 2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%
1995-2000 2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%

1981-2000 2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%
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#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

ARKANSAS (REGION=Southwest)

DEMOGRAPHIC DATA

							--RATIO OF TOTAL COMMERCIAL ACTIVITY--				
YEAR	PEOPLE	HOUSE-HOLDS	PERSONAL INCOME	INCOME/HH	APTS	URBAN RATIO	MINING	AGRICULT	TRANSP	CONSTRUCT	NON-MFG/ TOT EARN
			($000,000)	($1981/HH)	(RATIOS)						
1981	2297797	831096	18467	22220	.0735	1.0000	.0094	.1216	.0946	.0746	.7166
1982	2310664	846471	18190	21489	.0746	1.0000	.0091	.1182	.0943	.0746	.7158
1983	2323604	862131	18736	21732	.0757	1.0000	.0089	.1149	.0941	.0747	.7149
1984	2336616	878080	19560	22276	.0769	1.0000	.0086	.1116	.0939	.0748	.7141
1985	2349701	894324	20342	22746	.0779	1.0000	.0084	.1085	.0936	.0748	.7132
1986	2367323	908723	21014	23125	.0791	1.0000	.0082	.1055	.0934	.0749	.7123
1987	2385079	923353	21707	23509	.0802	1.0000	.0080	.1025	.0932	.0749	.7114
1988	2402966	938220	22424	23900	.0814	1.0000	.0078	.0996	.0929	.0750	.7106
1989	2420989	953325	23164	24298	.0826	1.0000	.0076	.0969	.0927	.0751	.7097
1990	2439145	968673	23928	24702	.0839	1.0000	.0074	.0941	.0925	.0751	.7088
1991	2456219	982235	24598	25043	.0852	1.0000	.0072	.0914	.0923	.0751	.7079
1992	2473413	995986	25287	25389	.0866	1.0000	.0070	.0887	.0921	.0751	.7070
1993	2490727	1009930	25995	25739	.0879	1.0000	.0068	.0862	.0919	.0751	.7061
1994	2508162	1024068	26723	26095	.0893	1.0000	.0067	.0837	.0917	.0751	.7052
1995	2525719	1038405	27471	26455	.0907	1.0000	.0065	.0813	.0915	.0751	.7043
1996	2543399	1052943	28240	26820	.0922	1.0000	.0063	.0789	.0913	.0751	.7034
1997	2561202	1067685	29031	27190	.0936	1.0000	.0061	.0766	.0911	.0751	.7025
1998	2579131	1082632	29844	27566	.0951	1.0000	.0060	.0744	.0909	.0751	.7016
1999	2597185	1097789	30679	27946	.0966	1.0000	.0058	.0723	.0907	.0751	.7008
2000	2615365	1113158	31538	28332	.0981	1.0000	.0057	.0702	.0905	.0751	.6999

ANNUAL RATES OF GROWTH

1981-1985	.56%	1.85%	2.45%	.59%	1.46%	.00%	-2.77%	-2.81%	-.27%	.07%	-.12%
1985-1990	.75%	1.61%	3.30%	1.66%	1.50%	.00%	-2.50%	-2.81%	-.24%	.08%	-.12%
1990-1995	.70%	1.40%	2.80%	1.38%	1.57%	.00%	-2.56%	-2.88%	-.22%	.00%	-.13%
1995-2000	.70%	1.40%	2.80%	1.38%	1.58%	.00%	-2.59%	-2.89%	-.22%	.00%	-.13%
1981-2000	.68%	1.55%	2.86%	1.29%	1.53%	.00%	-2.60%	-2.85%	-.23%	.04%	-.12%

#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

ARKANSAS (REGION=Southwest)

ENERGY PRICES

	GAS			ELECTRIC			PETROLEUM				
YEAR	RESIDENT	COMMERC	INDUSTR	RESIDENT	COMMERC	INDUSTR	RESIDENT	COMMERC	INDUSTR	COAL	LPG
	($1981/MMBTU)			($1981/KWH)	(INDEX)		($1981/GAL)	(INDEX)		(INDEX)	($1981/GAL)
1981	2.80	2.51	2.40	.0594	.0552	.0394	1.2050	100.00	100.00	100.00	.4800
1982	3.36	3.07	2.96	.0684	.0635	.0454	1.1027	91.51	91.51	103.00	.5050
1983	3.49	3.20	3.09	.0716	.0665	.0475	.9820	81.49	81.49	106.09	.5312
1984	3.43	3.14	3.03	.0760	.0706	.0504	.9530	79.15	79.15	109.27	.5588
1985	3.27	2.98	2.87	.0799	.0742	.0530	.9376	77.81	77.81	112.55	.5879
1986	3.28	2.99	2.88	.0827	.0768	.0548	.9442	78.36	78.36	115.93	.6185
1987	3.51	3.22	3.11	.0831	.0772	.0551	.9508	78.91	78.91	119.41	.6506
1988	3.92	3.63	3.52	.0841	.0781	.0558	.9575	79.46	79.46	122.99	.6845
1989	4.37	4.08	3.97	.0855	.0794	.0567	.9642	80.01	80.01	126.68	.7201
1990	4.70	4.41	4.30	.0861	.0800	.0571	.9709	80.58	80.58	130.48	.7575
1991	4.86	4.57	4.46	.0875	.0813	.0580	.9826	81.54	81.54	134.39	.7969
1992	4.85	4.56	4.45	.0894	.0830	.0593	.9944	82.52	82.52	138.42	.8383
1993	4.80	4.51	4.40	.0811	.0753	.0538	1.0063	83.51	83.51	142.58	.8819
1994	4.88	4.59	4.48	.0899	.0835	.0596	1.0184	84.51	84.51	146.85	.9278
1995	5.02	4.73	4.62	.0806	.0749	.0535	1.0306	85.53	85.53	151.26	.9760
1996	5.25	4.96	4.85	.0884	.0821	.0587	1.0512	87.24	87.24	155.80	1.0268
1997	5.48	5.19	5.08	.0806	.0748	.0534	1.0722	88.98	88.90	160.47	1.0802
1998	5.71	5.42	5.31	.0854	.0821	.0586	1.0937	90.76	90.76	165.28	1.1363
1999	5.98	5.69	5.58	.0816	.0752	.0537	1.1156	92.58	92.58	170.24	1.1954
2000	6.27	5.98	5.87	.0871	.0809	.0577	1.1379	94.43	94.43	175.35	1.2576

ANNUAL RATES OF GROWTH

1981-1985	3.96%	4.38%	4.57%	7.68%	7.68%	7.68%	-6.08%	-6.08%	-6.08%	3.00%	5.20%
1985-1990	7.53%	8.15%	8.42%	1.51%	1.51%	1.51%	.70%	.70%	.70%	3.00%	5.20%
1990-1995	1.33%	1.41%	1.45%	-1.31%	-1.31%	-1.31%	1.20%	1.20%	1.20%	3.00%	5.20%
1995-2000	4.55%	4.80%	4.91%	1.55%	1.55%	1.56%	2.00%	2.00%	2.00%	3.00%	5.20%
1981-2000	4.33%	4.68%	4.82%	2.03%	2.03%	2.03%	-.30%	-.30%	-.30%	3.00%	5.20%

#37 -- ADDABBO - HEINZ SCENARIO

FRI, MAY 13, 1983, 3:37 PM

ARKANSAS (REGION=Southwest)

VALUE ADDED INDEXES BY 2-DIGIT SIC

YEAR	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1981	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1982	.99	.89	.91	.93	.88	1.01	.90	.85	.65	.82	.81	.95	.95	.92
1983	1.01	.93	.94	.97	.92	1.02	.95	.88	.69	.85	.86	1.00	.98	.98
1984	1.04	.97	.97	1.01	.95	1.04	1.00	.92	.73	.89	.91	1.05	1.01	1.04
1985	1.07	1.01	1.01	1.05	.99	1.05	1.06	.96	.77	.92	.96	1.10	1.04	1.10
1986	1.10	1.06	1.05	1.10	1.05	1.05	1.13	1.01	.81	.96	1.02	1.18	1.09	1.14
1987	1.12	1.11	1.09	1.15	1.11	1.05	1.20	1.07	.84	1.00	1.08	1.26	1.14	1.17
1988	1.15	1.17	1.13	1.20	1.18	1.05	1.28	1.14	.87	1.04	1.15	1.34	1.19	1.21
1989	1.18	1.23	1.17	1.26	1.25	1.05	1.36	1.21	.91	1.08	1.22	1.43	1.24	1.25
1990	1.21	1.29	1.22	1.32	1.32	1.05	1.45	1.28	.94	1.12	1.29	1.53	1.30	1.29
1991	1.24	1.34	1.26	1.36	1.38	1.05	1.54	1.33	.98	1.15	1.35	1.60	1.33	1.33
1992	1.27	1.40	1.30	1.41	1.43	1.05	1.64	1.39	1.01	1.19	1.41	1.67	1.36	1.36
1993	1.31	1.46	1.34	1.46	1.49	1.05	1.75	1.45	1.05	1.22	1.47	1.75	1.39	1.40
1994	1.34	1.52	1.38	1.50	1.54	1.05	1.86	1.51	1.09	1.25	1.54	1.83	1.42	1.44
1995	1.38	1.59	1.43	1.56	1.60	1.04	1.98	1.57	1.12	1.29	1.61	1.91	1.45	1.48
1996	1.41	1.66	1.47	1.61	1.67	1.04	2.08	1.62	1.16	1.32	1.68	2.00	1.48	1.52
1997	1.45	1.73	1.52	1.66	1.74	1.04	2.18	1.68	1.21	1.36	1.76	2.09	1.51	1.56
1998	1.49	1.80	1.57	1.72	1.81	1.04	2.28	1.73	1.25	1.40	1.84	2.18	1.55	1.60
1999	1.53	1.88	1.62	1.78	1.88	1.04	2.39	1.79	1.29	1.44	1.92	2.28	1.58	1.65
2000	1.56	1.96	1.67	1.84	1.96	1.03	2.51	1.85	1.34	1.48	2.00	2.38	1.62	1.70

ANNUAL RATES OF GROWTH

1981-1985	1.71%	.25%	.25%	1.23%	-.25%	1.23%	1.47%	-1.02%	-6.33%	-2.06%	-1.02%	2.41%	.99%	2.41%
1985-1990	2.49%	5.02%	3.85%	4.68%	5.92%	.00%	6.47%	5.92%	4.07%	4.01%	6.09%	6.82%	4.56%	3.24%
1990-1995	2.66%	4.27%	3.23%	3.40%	3.92%	-.19%	6.43%	4.17%	3.57%	2.87%	4.53%	4.54%	2.21%	2.79%
1995-2000	2.48%	4.27%	3.15%	3.36%	4.14%	-.19%	4.86%	3.34%	3.65%	2.79%	4.43%	4.50%	2.24%	2.81%
1981-2000	2.37%	3.61%	2.74%	3.26%	3.61%	.16%	4.96%	3.29%	1.55%	2.08%	3.72%	4.67%	2.57%	2.83%

#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

ARKANSAS (REGION=Southwest)

WAGE INDEXES BY 2-DIGIT SIC

YEAR	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1981	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1982	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
1983	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
1984	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
1985	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08
1986	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
1987	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13
1988	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15
1989	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17
1990	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
1991	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22
1992	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24
1993	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27
1994	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29
1995	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32
1996	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35
1997	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37
1998	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40
1999	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43
2000	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46

ANNUAL RATES OF GROWTH

1981-1985	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1985-1990	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1990-1995	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1995-2000	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1981-2000	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%

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#37 -- ADDABBO - HEINZ SCENARIO                                                                   FRI, MAY 13, 1983,  3:37 PM

CALIF.   (REGION=West                    )

                                                     DEMOGRAPHIC DATA
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                                                                          --RATIO OF TOTAL COMMERCIAL ACTIVITY--
                                                                URBAN    --------------------------------------    NON-MFG/
                              HOUSE-   PERSONAL                                                                   TOT EARN
    YEAR      PEOPLE          HOLDS     INCOME  INCOME/HH      APTS    RATIO      MINING  AGRICULT    TRANSP CONSTRUCT
  --------   --------      --------   --------   --------  --------  --------   --------  --------  --------  --------  --------
                                   ($000,000) ($1981/HH) --------------------------(RATIOS)--------------------------------
    1981   23983796        8856960     288481     32571      .2444    1.0000      .0045     .0286     .0932     .0720     .7844
    1982   24302780        9089906     284154     31260      .2480    1.0000      .0043     .0278     .0931     .0718     .7856
    1983   24626004        9328970     292670     31373      .2516    1.0000      .0042     .0271     .0930     .0716     .7869
    1984   24953528        9574322     305556     31914      .2553    1.0000      .0041     .0263     .0929     .0714     .7881
    1985   25285408        9826126     317779     32340      .2591    1.0000      .0039     .0256     .0928     .0711     .7893
    1986   25598836       10029526     328265     32730      .2629    1.0000      .0038     .0249     .0927     .0709     .7905
    1987   25895904       10237136     339098     33124      .2667    1.0000      .0037     .0243     .0925     .0707     .7918
    1988   26206656       10449044     350288     33523      .2706    1.0000      .0036     .0236     .0924     .0705     .7930
    1989   26521140       10665338     361840     33927      .2746    1.0000      .0035     .0230     .0923     .0703     .7942
    1990   26839396       10886110     373789     34336      .2786    1.0000      .0034     .0224     .0922     .0701     .7954
    1991   27097052       11066818     384255     34721      .2828    1.0000      .0033     .0218     .0921     .0699     .7966
    1992   27357180       11250526     395014     35111      .2869    1.0000      .0032     .0212     .0920     .0697     .7978
    1993   27619800       11437284     406074     35504      .2910    1.0000      .0031     .0207     .0919     .0695     .7990
    1994   27884956       11627142     417445     35903      .2954    1.0000      .0030     .0202     .0918     .0693     .8002
    1995   28152640       11820152     429133     36305      .2996    1.0000      .0029     .0196     .0917     .0691     .8014
    1996   28422912       12016366     441149     36712      .3041    1.0000      .0029     .0191     .0916     .0689     .8026
    1997   28695768       12215836     453501     37124      .3086    1.0000      .0028     .0186     .0915     .0687     .8039
    1998   28971244       12418610     466199     37540      .3130    1.0000      .0027     .0181     .0914     .0685     .8051
    1999   29249364       12624766     479253     37961      .3176    1.0000      .0026     .0177     .0913     .0683     .8063
    2000   29530156       12834336     492672     38387      .3223    1.0000      .0025     .0172     .0912     .0681     .8075


ANNUAL RATES OF GROWTH
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1981-1985      1.33%     2.63%     2.45%     -.10%     1.47%      .00%    -3.51%    -2.73%     -.11%     -.31%      .16%
1985-1990      1.20%     2.07%     3.30%     1.21%     1.46%      .00%    -2.71%    -2.64%     -.13%     -.28%      .15%
1990-1995       .96%     1.66%     2.80%     1.12%     1.46%      .00%    -3.13%    -2.64%     -.11%     -.29%      .15%
1995-2000       .96%     1.66%     2.80%     1.12%     1.47%      .00%    -2.92%    -2.58%     -.11%     -.29%      .15%

1981-2000      1.10%     1.97%     2.86%      .87%     1.47%      .00%    -3.05%    -2.64%     -.11%     -.29%      .15%
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#37 -- ADDABBO - HEINZ SCENARIO                                                 FRI, MAY 13, 1983,  3:37 PM

CALIF.   (REGION=West                    )

                                             ENERGY PRICES
                                             -------------

                     GAS                              ELECTRIC                           PETROLEUM
          ------------------------------  ------------------------------  ------------------------------
   YEAR   RESIDENT   COMMERC    INDUSTR   RESIDENT   COMMERC    INDUSTR   RESIDENT   COMMERC    INDUSTR       COAL        LPG
--------  --------   --------   --------  --------   --------   --------  --------   --------   --------    --------   --------
          -------( $1981/MMBTU)-------($1981/KWH) ----( INDEX)------($1981/GAL) -----( INDEX)-----  ( INDEX)($1981/GAL)

   1981      3.56       4.19       3.94     .0626      .0680      .0546    1.2050     100.00     100.00      100.00      .4000
   1982      4.12       4.75       4.50     .0661      .0719      .0577    1.1027      91.51      91.51      103.00      .5050
   1983      4.25       4.88       4.63     .0660      .0718      .0576     .9820      81.49      81.49      106.09      .5312
   1984      4.19       4.82       4.57     .0700      .0847      .0600     .9530      79.15      79.15      109.27      .5588
   1985      4.03       4.66       4.41     .0818      .0889      .0714     .9376      77.81      77.81      112.55      .5879
   1986      4.04       4.67       4.42     .0794      .0863      .0693     .9442      78.36      78.36      115.93      .6185
   1987      4.27       4.90       4.65     .0819      .0890      .0715     .9508      78.91      78.91      119.41      .6506
   1988      4.68       5.31       5.06     .0777      .0844      .0670     .9575      79.46      79.46      122.99      .6845
   1989      5.13       5.76       5.51     .0810      .0880      .0706     .9642      80.01      80.01      126.68      .7201
   1990      5.46       6.09       5.84     .0781      .0849      .0682     .9709      80.58      80.58      130.48      .7575
   1991      5.62       6.25       6.00     .0801      .0870      .0698     .9826      81.54      81.54      134.39      .7969
   1992      5.61       6.24       5.99     .0799      .0868      .0697     .9944      82.52      82.52      138.42      .8383
   1993      5.56       6.19       5.94     .0719      .0781      .0627    1.0063      83.51      83.51      142.58      .8819
   1994      5.64       6.27       6.02     .0652      .0709      .0569    1.0184      84.51      84.51      146.85      .9278
   1995      5.78       6.41       6.16     .0826      .0898      .0721    1.0306      85.53      85.53      151.26      .9760
   1996      6.01       6.64       6.39     .0741      .0805      .0646    1.0512      87.24      87.24      155.80     1.0268
   1997      6.24       6.87       6.62     .0685      .0744      .0598    1.0722      88.98      88.98      160.47     1.0802
   1998      6.47       7.10       6.85     .0635      .0690      .0554    1.0937      90.76      90.76      165.28     1.1363
   1999      6.74       7.37       7.12     .0795      .0864      .0694    1.1156      92.58      92.58      170.24     1.1954
   2000      7.03       7.66       7.41     .0711      .0773      .0620    1.1379      94.43      94.43      175.35     1.2576


ANNUAL RATES OF GROWTH
----------------------

1981-1985     3.15%      2.69%      2.86%     6.91%      6.91%      6.91%    -6.08%     -6.08%     -6.08%       3.00%      5.20%
1985-1990     6.26%      5.50%      5.78%     -.91%      -.91%      -.91%      .70%       .70%       .70%       3.00%      5.20%
1990-1995     1.15%      1.03%      1.07%     1.12%      1.13%      1.12%     1.20%      1.20%      1.20%       3.00%      5.20%
1995-2000     3.99%      3.63%      3.76%    -2.96%     -2.96%     -2.96%     2.00%      2.00%      2.00%       3.00%      5.20%

1981-2000     3.65%      3.23%      3.38%      .67%       .67%       .67%     -.30%      -.30%      -.30%       3.00%      5.20%
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#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

CALIF. (REGION=West)

VALUE ADDED INDEXES BY 2-DIGIT SIC

YEAR	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1981	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1982	.99	.89	.91	.93	.88	1.01	.90	.85	.65	.82	.81	.95	.95	.92
1983	1.01	.93	.94	.97	.92	1.02	.95	.88	.69	.85	.86	1.00	.98	.98
1984	1.04	.97	.97	1.01	.95	1.04	1.00	.92	.73	.89	.91	1.05	1.01	1.04
1985	1.07	1.01	1.01	1.05	.99	1.05	1.06	.96	.77	.92	.96	1.10	1.04	1.10
1986	1.10	1.06	1.05	1.10	1.05	1.05	1.13	1.01	.81	.96	1.02	1.18	1.09	1.14
1987	1.12	1.11	1.09	1.15	1.11	1.05	1.20	1.07	.84	1.00	1.08	1.26	1.14	1.17
1988	1.15	1.17	1.13	1.20	1.18	1.05	1.28	1.14	.87	1.04	1.15	1.34	1.19	1.21
1989	1.18	1.23	1.17	1.26	1.25	1.05	1.36	1.21	.91	1.08	1.22	1.43	1.24	1.25
1990	1.21	1.29	1.22	1.32	1.32	1.05	1.45	1.28	.94	1.12	1.29	1.53	1.30	1.29
1991	1.24	1.34	1.26	1.36	1.38	1.05	1.54	1.33	.98	1.15	1.35	1.60	1.33	1.33
1992	1.27	1.40	1.30	1.41	1.43	1.05	1.64	1.39	1.01	1.19	1.41	1.67	1.36	1.36
1993	1.31	1.46	1.34	1.46	1.49	1.05	1.75	1.45	1.05	1.22	1.47	1.75	1.39	1.40
1994	1.34	1.52	1.38	1.50	1.54	1.05	1.86	1.51	1.09	1.25	1.54	1.83	1.42	1.44
1995	1.38	1.59	1.43	1.56	1.60	1.04	1.98	1.57	1.12	1.29	1.61	1.91	1.45	1.48
1996	1.41	1.66	1.47	1.61	1.67	1.04	2.08	1.62	1.16	1.32	1.68	2.00	1.48	1.52
1997	1.45	1.73	1.52	1.66	1.74	1.04	2.18	1.68	1.21	1.36	1.76	2.09	1.51	1.56
1998	1.49	1.80	1.57	1.72	1.81	1.04	2.28	1.73	1.25	1.40	1.84	2.18	1.55	1.60
1999	1.53	1.88	1.62	1.78	1.88	1.04	2.39	1.79	1.29	1.44	1.92	2.28	1.58	1.65
2000	1.56	1.96	1.67	1.84	1.96	1.03	2.51	1.85	1.34	1.48	2.00	2.38	1.62	1.70

ANNUAL RATES OF GROWTH

1981-1985	1.71%	.25%	.25%	1.23%	-.25%	1.23%	1.47%	-1.02%	-6.33%	-2.06%	-1.02%	2.41%	.99%	2.41%
1985-1990	2.49%	5.02%	3.85%	4.68%	5.92%	.00%	6.47%	5.92%	4.07%	4.01%	6.09%	6.82%	4.56%	3.24%
1990-1995	2.66%	4.27%	3.23%	3.40%	3.92%	-.19%	6.43%	4.17%	3.57%	2.87%	4.53%	4.54%	2.21%	2.79%
1995-2000	2.48%	4.27%	3.15%	3.36%	4.14%	-.19%	4.86%	3.34%	3.65%	2.79%	4.43%	4.50%	2.24%	2.81%
1981-2000	2.37%	3.61%	2.74%	3.26%	3.61%	.16%	4.96%	3.29%	1.55%	2.08%	3.72%	4.67%	2.57%	2.83%

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#37 -- ADDABBO - HEINZ SCENARIO                                                              FRI, MAY 13, 1983,  3:37 PM

CALIF.   (REGION=West                  )

                                                 WAGE INDEXES BY 2-DIGIT SIC
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                                                                                   PRIMARY  FABRIC.           ELECTRIC
YEAR      FOOD  TEXTILE    LUMBER     PAPER CHEMICAL    PETROL    RUBBER     STONE   METAL    METAL  MACHINE  MACHINE     TRANSP     OTHER
----   -------  -------   -------   -------  -------   -------   -------   -------  -------  -------  -------  -------    -------   -------
1981      1.00     1.00      1.00      1.00     1.00      1.00      1.00      1.00     1.00     1.00     1.00     1.00       1.00      1.00
1982      1.02     1.02      1.02      1.02     1.02      1.02      1.02      1.02     1.02     1.02     1.02     1.02       1.02      1.02
1983      1.04     1.04      1.04      1.04     1.04      1.04      1.04      1.04     1.04     1.04     1.04     1.04       1.04      1.04
1984      1.06     1.06      1.06      1.06     1.06      1.06      1.06      1.06     1.06     1.06     1.06     1.06       1.06      1.06
1985      1.08     1.08      1.08      1.08     1.08      1.08      1.08      1.08     1.08     1.08     1.08     1.08       1.08      1.08
1986      1.10     1.10      1.10      1.10     1.10      1.10      1.10      1.10     1.10     1.10     1.10     1.10       1.10      1.10
1987      1.13     1.13      1.13      1.13     1.13      1.13      1.13      1.13     1.13     1.13     1.13     1.13       1.13      1.13
1988      1.15     1.15      1.15      1.15     1.15      1.15      1.15      1.15     1.15     1.15     1.15     1.15       1.15      1.15
1989      1.17     1.17      1.17      1.17     1.17      1.17      1.17      1.17     1.17     1.17     1.17     1.17       1.17      1.17
1990      1.20     1.20      1.20      1.20     1.20      1.20      1.20      1.20     1.20     1.20     1.20     1.20       1.20      1.20
1991      1.22     1.22      1.22      1.22     1.22      1.22      1.22      1.22     1.22     1.22     1.22     1.22       1.22      1.22
1992      1.24     1.24      1.24      1.24     1.24      1.24      1.24      1.24     1.24     1.24     1.24     1.24       1.24      1.24
1993      1.27     1.27      1.27      1.27     1.27      1.27      1.27      1.27     1.27     1.27     1.27     1.27       1.27      1.27
1994      1.29     1.29      1.29      1.29     1.29      1.29      1.29      1.29     1.29     1.29     1.29     1.29       1.29      1.29
1995      1.32     1.32      1.32      1.32     1.32      1.32      1.32      1.32     1.32     1.32     1.32     1.32       1.32      1.32
1996      1.35     1.35      1.35      1.35     1.35      1.35      1.35      1.35     1.35     1.35     1.35     1.35       1.35      1.35
1997      1.37     1.37      1.37      1.37     1.37      1.37      1.37      1.37     1.37     1.37     1.37     1.37       1.37      1.37
1998      1.40     1.40      1.40      1.40     1.40      1.40      1.40      1.40     1.40     1.40     1.40     1.40       1.40      1.40
1999      1.43     1.43      1.43      1.43     1.43      1.43      1.43      1.43     1.43     1.43     1.43     1.43       1.43      1.43
2000      1.46     1.46      1.46      1.46     1.46      1.46      1.46      1.46     1.46     1.46     1.46     1.46       1.46      1.46


ANNUAL RATES OF GROWTH
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1981-1985 2.00%    2.00%     2.00%     2.00%    2.00%     2.00%     2.00%     2.00%    2.00%    2.00%    2.00%    2.00%      2.00%     2.00%
1985-1990 2.00%    2.00%     2.00%     2.00%    2.00%     2.00%     2.00%     2.00%    2.00%    2.00%    2.00%    2.00%      2.00%     2.00%
1990-1995 2.00%    2.00%     2.00%     2.00%    2.00%     2.00%     2.00%     2.00%    2.00%    2.00%    2.00%    2.00%      2.00%     2.00%
1995-2000 2.00%    2.00%     2.00%     2.00%    2.00%     2.00%     2.00%     2.00%    2.00%    2.00%    2.00%    2.00%      2.00%     2.00%

1981-2000 2.00%    2.00%     2.00%     2.00%    2.00%     2.00%     2.00%     2.00%    2.00%    2.00%    2.00%    2.00%      2.00%     2.00%
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#37 -- ADDABBO - HEINZ SCENARIO

FRI, MAY 13, 1983, 3:37 PM

COLORADO (REGION=North Central)

DEMOGRAPHIC DATA

YEAR	PEOPLE	HOUSE-HOLDS	PERSONAL INCOME	INCOME/HH	APTS	URBAN RATIO	--RATIO OF TOTAL COMMERCIAL ACTIVITY-- MINING	AGRICULT	TRANSP	CONSTRUCT	NON-MFG/ TOT EARN
			($000,000)	($1981/HH)	(RATIOS)						
1981	2962827	1101637	33256	30188	.1967	1.0000	.0201	.0425	.0887	.0857	.0360
1982	3037490	1143829	32757	28638	.1996	1.0000	.0197	.0415	.0886	.0853	.0374
1983	3114035	1187638	33740	28489	.2025	1.0000	.0194	.0405	.0885	.0848	.0387
1984	3192508	1233125	35224	28565	.2055	1.0000	.0190	.0396	.0883	.0843	.0400
1985	3272959	1280354	36633	28612	.2086	1.0000	.0186	.0387	.0882	.0838	.0414
1986	3332855	1314923	37842	26779	.2117	1.0000	.0183	.0378	.0880	.0834	.0427
1987	3393846	1350426	39091	28947	.2148	1.0000	.0179	.0369	.0879	.0829	.0439
1988	3455954	1386888	40381	29116	.2179	1.0000	.0176	.0360	.0877	.0825	.0452
1989	3519198	1424333	41714	29286	.2211	1.0000	.0172	.0352	.0876	.0820	.0465
1990	3583599	1462790	43090	29458	.2243	1.0000	.0169	.0344	.0875	.0816	.0478
1991	3637354	1494971	44297	29631	.2276	1.0000	.0166	.0336	.0874	.0812	.0491
1992	3691914	1527861	45537	29804	.2309	1.0000	.0163	.0329	.0873	.0808	.0504
1993	3747294	1561475	46812	29979	.2343	1.0000	.0160	.0321	.0872	.0804	.0517
1994	3803504	1595827	48123	30155	.2378	1.0000	.0158	.0314	.0871	.0800	.0530
1995	3860556	1630935	49470	30332	.2412	1.0000	.0155	.0307	.0870	.0796	.0543
1996	3918465	1666816	50855	30511	.2448	1.0000	.0152	.0300	.0869	.0792	.0556
1997	3977242	1703486	52279	30690	.2483	1.0000	.0149	.0293	.0868	.0789	.0570
1998	4036901	1740963	53743	30870	.2519	1.0000	.0147	.0286	.0867	.0785	.0583
1999	4097455	1779264	55248	31051	.2556	1.0000	.0144	.0280	.0866	.0781	.0596
2000	4158918	1818408	56795	31233	.2593	1.0000	.0142	.0273	.0865	.0777	.0609

ANNUAL RATES OF GROWTH

1981-1985	2.52%	3.83%	2.45%	-1.33%	1.48%	.00%	-1.92%	-2.31%	-.14%	-.56%	.16%
1985-1990	1.83%	2.70%	3.30%	.58%	1.46%	.00%	-1.90%	-2.33%	-.16%	-.53%	.15%
1990-1995	1.50%	2.20%	2.80%	.59%	1.46%	.00%	-1.71%	-2.25%	-.11%	-.50%	.15%
1995-2000	1.50%	2.20%	2.80%	.59%	1.46%	.00%	-1.74%	-2.32%	-.12%	-.48%	.15%
1981-2000	1.80%	2.67%	2.86%	.18%	1.46%	.00%	-1.81%	-2.30%	-.13%	-.51%	.15%

#37 -- ADDABBO - HEINZ SCENARIO

FRI, MAY 13, 1983, 3:37 PM

COLORADO (REGION=North Central)

ENERGY PRICES

YEAR	GAS			ELECTRIC			PETROLEUM				
	RESIDENT	COMMERC	INDUSTR	RESIDENT	COMMERC	INDUSTR	RESIDENT	COMMERC	INDUSTR	COAL	LPG
		($1981/MMBTU)		($1981/KWH)	(INDEX)		($1981/GAL)	(INDEX)		(INDEX)	($1981/GAL)
1981	4.10	3.77	3.38	.0602	.0554	.0306	1.2050	100.00	100.00	100.00	.4800
1982	4.66	4.33	3.94	.0691	.0635	.0351	1.1027	91.51	91.51	103.00	.5050
1983	4.79	4.46	4.07	.0685	.0629	.0348	.9820	81.49	81.49	106.09	.5312
1984	4.73	4.40	4.01	.0722	.0664	.0367	.9538	79.15	79.15	109.27	.5588
1985	4.57	4.24	3.85	.0782	.0719	.0398	.9376	77.81	77.81	112.55	.5879
1986	4.58	4.25	3.86	.0853	.0784	.0434	.9442	78.36	78.36	115.93	.6185
1987	4.81	4.48	4.09	.0840	.0772	.0427	.9508	78.91	78.91	119.41	.6506
1988	5.22	4.89	4.50	.0880	.0809	.0447	.9575	79.46	79.46	122.99	.6845
1989	5.67	5.34	4.95	.0858	.0789	.0436	.9642	80.01	80.01	126.68	.7201
1990	6.00	5.67	5.28	.0897	.0825	.0456	.9709	80.58	80.58	130.48	.7575
1991	6.16	5.83	5.44	.0886	.0814	.0450	.9826	81.54	81.54	134.39	.7969
1992	6.15	5.82	5.43	.0889	.0818	.0452	.9944	82.52	82.52	138.42	.8383
1993	6.10	5.77	5.38	.0884	.0812	.0449	1.0063	83.51	83.51	142.58	.8819
1994	6.10	5.85	5.46	.0877	.0807	.0446	1.0184	84.51	84.51	146.85	.9278
1995	6.32	5.99	5.60	.0852	.0783	.0433	1.0306	85.53	85.53	151.26	.9760
1996	6.55	6.22	5.83	.0844	.0775	.0429	1.0512	87.24	87.24	155.80	1.0268
1997	6.78	6.45	6.06	.0835	.0767	.0424	1.0722	88.98	88.98	160.47	1.0802
1998	7.01	6.68	6.29	.0827	.0760	.0420	1.0937	90.76	90.76	165.28	1.1363
1999	7.28	6.95	6.56	.0814	.0748	.0414	1.1156	92.58	92.58	170.24	1.1954
2000	7.57	7.24	6.85	.0799	.0734	.0406	1.1379	94.43	94.43	175.35	1.2576

ANNUAL RATES OF GROWTH

1981-1985	2.75%	2.98%	3.31%	6.73%	6.73%	6.73%	-6.08%	-6.08%	-6.08%	3.00%	5.20%
1985-1990	5.60%	5.98%	6.52%	2.78%	2.78%	2.78%	.70%	.70%	.70%	3.00%	5.20%
1990-1995	1.04%	1.10%	1.18%	-1.03%	-1.03%	-1.03%	1.20%	1.20%	1.20%	3.00%	5.20%
1995-2000	3.68%	3.86%	4.11%	-1.27%	-1.27%	-1.27%	2.00%	2.00%	2.00%	3.00%	5.20%
1981-2000	3.28%	3.49%	3.79%	1.50%	1.50%	1.50%	-.30%	-.30%	-.30%	3.00%	5.20%

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#37 -- ADDABBO - HEINZ SCENARIO                                                          FRI, MAY 13, 1983,  3:37 PM

COLORADO (REGION=North Central        )

                                         VALUE ADDED INDEXES BY 2-DIGIT SIC
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                                                                                  PRIMARY  FABRIC.           ELECTRIC
YEAR      FOOD  TEXTILE   LUMBER     PAPER CHEMICAL   PETROL   RUBBER    STONE    METAL    METAL   MACHINE  MACHINE    TRANSP    OTHER
----   -------  -------  -------   -------  -------  -------  -------  -------  -------  -------   -------  -------   -------  -------
1981     1.00     1.00     1.00      1.00     1.00     1.00     1.00     1.00     1.00     1.00      1.00     1.00      1.00     1.00
1982      .99      .89      .91       .93      .88     1.01      .90      .85      .65      .82       .81      .95       .95      .92
1983     1.01      .93      .94       .97      .92     1.02      .95      .88      .69      .85       .86     1.00       .98      .98
1984     1.04      .97      .97      1.01      .95     1.04     1.00      .92      .73      .89       .91     1.05      1.01     1.04
1985     1.07     1.01     1.01      1.05      .99     1.05     1.06      .96      .77      .92       .96     1.10      1.04     1.10
1986     1.10     1.06     1.05      1.10     1.05     1.05     1.13     1.01      .81      .96      1.02     1.18      1.09     1.14
1987     1.12     1.11     1.09      1.15     1.11     1.05     1.20     1.07      .84     1.00      1.08     1.26      1.14     1.17
1988     1.15     1.17     1.13      1.20     1.18     1.05     1.28     1.14      .87     1.04      1.15     1.34      1.19     1.21
1989     1.18     1.23     1.17      1.26     1.25     1.05     1.36     1.21      .91     1.08      1.22     1.43      1.24     1.25
1990     1.21     1.29     1.22      1.32     1.32     1.05     1.45     1.28      .94     1.12      1.29     1.53      1.30     1.29
1991     1.24     1.34     1.26      1.36     1.38     1.05     1.54     1.33      .98     1.15      1.35     1.60      1.33     1.33
1992     1.27     1.40     1.30      1.41     1.43     1.05     1.64     1.39     1.01     1.19      1.41     1.67      1.36     1.36
1993     1.31     1.46     1.34      1.46     1.49     1.05     1.75     1.45     1.05     1.22      1.47     1.75      1.39     1.40
1994     1.34     1.52     1.38      1.50     1.54     1.05     1.86     1.51     1.09     1.25      1.54     1.83      1.42     1.44
1995     1.38     1.59     1.43      1.56     1.60     1.04     1.98     1.57     1.12     1.29      1.61     1.91      1.45     1.48
1996     1.41     1.66     1.47      1.61     1.67     1.04     2.08     1.62     1.16     1.32      1.68     2.00      1.48     1.52
1997     1.45     1.73     1.52      1.66     1.74     1.04     2.18     1.68     1.21     1.36      1.76     2.09      1.51     1.56
1998     1.49     1.80     1.57      1.72     1.81     1.04     2.28     1.73     1.25     1.40      1.84     2.18      1.55     1.60
1999     1.53     1.88     1.62      1.78     1.88     1.04     2.39     1.79     1.29     1.44      1.92     2.28      1.58     1.65
2000     1.56     1.96     1.67      1.84     1.96     1.03     2.51     1.85     1.34     1.48      2,00     2.38      1.62     1.70


ANNUAL RATES OF GROWTH
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1981-1985 1.71%     .25%     .25%     1.23%    -.25%    1.23%    1.47%   -1.02%   -6.33%   -2.06%    -1.02%    2.41%      .99%    2.41%
1985-1990 2.49%    5.02%    3.85%     4.68%    5.92%     .00%    6.47%    5.92%    4.07%    4.01%     6.09%    6.82%     4.56%    3.24%
1990-1995 2.66%    4.27%    3.23%     3.40%    3.92%    -.19%    6.43%    4.17%    3.57%    2.87%     4.53%    4.54%     2.21%    2.79%
1995-2000 2.48%    4.27%    3.15%     3.36%    4.14%    -.19%    4.86%    3.34%    3.65%    2.79%     4.43%    4.50%     2.24%    2.81%

1981-2000 2.37%    3.61%    2.74%     3.26%    3.61%     .16%    4.96%    3.29%    1.55%    2.08%     3.72%    4.67%     2.57%    2.83%
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#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

COLORADO (REGION=North Central)

WAGE INDEXES BY 2-DIGIT SIC

YEAR	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1981	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1982	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
1983	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
1984	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
1985	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08
1986	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
1987	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13
1988	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15
1989	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17
1990	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
1991	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22
1992	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24
1993	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27
1994	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29
1995	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32
1996	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35
1997	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37
1998	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40
1999	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43
2000	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46

ANNUAL RATES OF GROWTH

1981-1985	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1985-1990	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1990-1995	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1995-2000	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1981-2000	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%

#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

CONN. (REGION=New England)

DEMOGRAPHIC DATA

YEAR	PEOPLE	HOUSE-HOLDS	PERSONAL INCOME	INCOME/HH	APTS	URBAN RATIO	--RATIO OF TOTAL COMMERCIAL ACTIVITY-- MINING	AGRICULT	TRANSP	CONSTRUCT	NON-MFG/ TOT EARN
			($000,000)	($1981/HH)	(RATIOS)						
1981	3125642	1114677	40164	36032	.1783	1.0000	.0011	.0107	.0760	.0987	.6676
1982	3144396	1135744	39562	34833	.1810	1.0000	.0011	.0103	.0757	.0980	.6709
1983	3163264	1157209	40748	35213	.1836	1.0000	.0011	.0100	.0754	.0973	.6742
1984	3182243	1179081	42541	36080	.1864	1.0000	.0011	.0096	.0752	.0966	.6775
1985	3201337	1201366	44243	36827	.1891	1.0000	.0010	.0093	.0749	.0959	.6808
1986	3233991	1224071	45703	37337	.1918	1.0000	.0010	.0090	.0747	.0952	.6840
1987	3266978	1247206	47211	37854	.1947	1.0000	.0010	.0087	.0745	.0945	.6872
1988	3300302	1270778	48769	38377	.1976	1.0000	.0010	.0084	.0743	.0939	.6903
1989	3333965	1294796	50379	38908	.2005	1.0000	.0010	.0081	.0740	.0932	.6934
1990	3367970	1319267	52041	39447	.2034	1.0000	.0010	.0078	.0738	.0926	.6965
1991	3386157	1335626	53498	40055	.2063	1.0000	.0010	.0075	.0736	.0920	.6996
1992	3404442	1352187	54996	40672	.2093	1.0000	.0010	.0072	.0734	.0914	.7027
1993	3422826	1368955	56536	41299	.2124	1.0000	.0010	.0070	.0732	.0908	.7059
1994	3441309	1385930	58119	41935	.2155	1.0000	.0010	.0067	.0730	.0902	.7090
1995	3459893	1403115	59746	42581	.2185	1.0000	.0010	.0065	.0728	.0897	.7122
1996	3478575	1420514	61419	43237	.2217	1.0000	.0010	.0062	.0726	.0891	.7154
1997	3497360	1438129	63139	43904	.2249	1.0000	.0010	.0060	.0724	.0885	.7186
1998	3516246	1455961	64907	44580	.2282	1.0000	.0010	.0058	.0722	.0879	.7218
1999	3535232	1474015	66724	45267	.2314	1.0000	.0010	.0056	.0720	.0874	.7250
2000	3554322	1492293	68593	45965	.2348	1.0000	.0010	.0053	.0718	.0868	.7283

ANNUAL RATES OF GROWTH

1981-1985	.60%	1.89%	2.45%	.55%	1.48%	.00%	-2.35%	-3.44%	-.36%	-.72%	.49%
1985-1990	1.02%	1.89%	3.30%	1.38%	1.47%	.00%	.00%	-3.46%	-.30%	-.70%	.46%
1990-1995	.54%	1.24%	2.80%	1.54%	1.44%	.00%	.00%	-3.58%	-.27%	-.63%	.45%
1995-2000	.54%	1.24%	2.80%	1.54%	1.45%	.00%	.00%	-4.00%	-.28%	-.66%	.45%
1981-2000	.68%	1.55%	2.86%	1.29%	1.46%	.00%	-.50%	-3.63%	-.30%	-.67%	.46%

#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

CONN. (REGION=New England)

ENERGY PRICES

YEAR	GAS			ELECTRIC			PETROLEUM			COAL	LPG
	RESIDENT	COMMERC	INDUSTR	RESIDENT	COMMERC	INDUSTR	RESIDENT	COMMERC	INDUSTR		
	-------(	$1981/MMBTU)	-------	($1981/KWH)	----(	INDEX)------	($1981/GAL)	-----(	INDEX)-----	(INDEX)	($1981/GAL)
1981	6.65	5.46	4.96	.0890	.0867	.0705	1.2050	100.00	100.00	100.00	.4800
1982	7.21	6.02	5.52	.0940	.0916	.0745	1.1027	91.51	91.51	103.00	.5050
1983	7.34	6.15	5.65	.0950	.0925	.0752	.9820	81.49	81.49	106.09	.5312
1984	7.28	6.09	5.59	.0973	.0948	.0770	.9538	79.15	79.15	109.27	.5588
1985	7.12	5.93	5.43	.1038	.1011	.0822	.9376	77.81	77.81	112.55	.5879
1986	7.13	5.94	5.44	.1025	.0998	.0811	.9442	78.36	78.36	115.93	.6185
1987	7.36	6.17	5.67	.1118	.1089	.0885	.9508	78.91	78.91	119.41	.6506
1988	7.77	6.58	6.08	.1077	.1049	.0853	.9575	79.46	79.46	122.99	.6845
1989	8.22	7.03	6.53	.1048	.1021	.0830	.9642	80.01	80.01	126.68	.7201
1990	8.55	7.36	6.86	.1041	.1014	.0824	.9709	80.58	80.58	130.48	.7575
1991	8.71	7.52	7.02	.1049	.1022	.0831	.9826	81.54	81.54	134.39	.7969
1992	8.70	7.51	7.01	.1027	.1000	.0813	.9944	82.52	82.52	138.42	.8383
1993	8.65	7.46	6.96	.0997	.0971	.0789	1.0063	83.51	83.51	142.58	.8819
1994	8.73	7.54	7.04	.0970	.0945	.0768	1.0184	84.51	84.51	146.85	.9278
1995	8.87	7.68	7.18	.0927	.0903	.0734	1.0306	85.53	85.53	151.26	.9760
1996	9.10	7.91	7.41	.0907	.0884	.0719	1.0512	87.24	87.24	155.80	1.0268
1997	9.33	8.14	7.64	.0890	.0867	.0705	1.0722	88.98	88.98	160.47	1.0802
1998	9.56	8.37	7.87	.0888	.0865	.0703	1.0937	90.76	90.76	165.28	1.1363
1999	9.83	8.64	8.14	.0870	.0848	.0689	1.1156	92.58	92.58	170.24	1.1954
2000	10.12	8.93	8.43	.0860	.0837	.0680	1.1379	94.43	94.43	175.35	1.2576

ANNUAL RATES OF GROWTH

1981-1985	1.72%	2.09%	2.29%	3.91%	3.91%	3.91%	-6.08%	-6.08%	-6.08%	3.00%	5.20%
1985-1990	3.73%	4.42%	4.79%	.06%	.06%	.06%	.70%	.70%	.70%	3.00%	5.20%
1990-1995	.74%	.85%	.92%	-2.29%	-2.29%	-2.29%	1.20%	1.20%	1.20%	3.00%	5.20%
1995-2000	2.67%	3.06%	3.26%	-1.50%	-1.50%	-1.50%	2.00%	2.00%	2.00%	3.00%	5.20%
1981-2000	2.23%	2.62%	2.83%	-.18%	-.18%	-.18%	-.30%	-.30%	-.30%	3.00%	5.20%

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#37 -- ADDABBO - HEINZ SCENARIO                                                  FRI, MAY 13, 1983,  3:37 PM

CONN.     (REGION=New England         )

                                              VALUE ADDED INDEXES BY 2-DIGIT SIC
                                              ----------------------------------

                                                                                   PRIMARY  FABRIC.           ELECTRIC
YEAR      FOOD  TEXTILE   LUMBER    PAPER CHEMICAL   PETROL   RUBBER    STONE    METAL    METAL  MACHINE  MACHINE   TRANSP    OTHER
----   -------  -------  -------  -------  -------  -------  -------  -------  -------  -------  -------  -------  -------  -------
1981      1.00     1.00     1.00     1.00     1.00     1.00     1.00     1.00     1.00     1.00     1.00     1.00     1.00     1.00
1982       .99      .89      .91      .93      .88     1.01      .90      .85      .65      .82      .81      .95      .95      .92
1983      1.01      .93      .94      .97      .92     1.02      .95      .88      .69      .85      .86     1.00      .98      .98
1984      1.04      .97      .97     1.01      .95     1.04     1.00      .92      .73      .89      .91     1.05     1.01     1.04
1985      1.07     1.01     1.01     1.05      .99     1.05     1.06      .96      .77      .92      .96     1.10     1.04     1.10
1986      1.10     1.06     1.05     1.10     1.05     1.05     1.13     1.01      .81      .96     1.02     1.18     1.09     1.14
1987      1.12     1.11     1.09     1.15     1.11     1.05     1.20     1.07      .84     1.00     1.08     1.26     1.14     1.17
1988      1.15     1.17     1.13     1.20     1.18     1.05     1.28     1.14      .87     1.04     1.15     1.34     1.19     1.21
1989      1.18     1.23     1.17     1.26     1.25     1.05     1.36     1.21      .91     1.08     1.22     1.43     1.24     1.25
1990      1.21     1.29     1.22     1.32     1.32     1.05     1.45     1.28      .94     1.12     1.29     1.53     1.30     1.29
1991      1.24     1.34     1.26     1.36     1.38     1.05     1.54     1.33      .98     1.15     1.35     1.60     1.33     1.33
1992      1.27     1.40     1.30     1.41     1.43     1.05     1.64     1.39     1.01     1.19     1.41     1.67     1.36     1.36
1993      1.31     1.46     1.34     1.46     1.49     1.05     1.75     1.45     1.05     1.22     1.47     1.75     1.39     1.40
1994      1.34     1.52     1.38     1.50     1.54     1.05     1.86     1.51     1.09     1.25     1.54     1.83     1.42     1.44
1995      1.38     1.59     1.43     1.56     1.60     1.04     1.98     1.57     1.12     1.29     1.61     1.91     1.45     1.48
1996      1.41     1.66     1.47     1.61     1.67     1.04     2.08     1.62     1.16     1.32     1.68     2.00     1.48     1.52
1997      1.45     1.73     1.52     1.66     1.74     1.04     2.18     1.68     1.21     1.36     1.76     2.09     1.51     1.56
1998      1.49     1.80     1.57     1.72     1.81     1.04     2.28     1.73     1.25     1.40     1.84     2.18     1.55     1.60
1999      1.53     1.88     1.62     1.78     1.88     1.04     2.39     1.79     1.29     1.44     1.92     2.28     1.58     1.65
2000      1.56     1.96     1.67     1.84     1.96     1.03     2.51     1.85     1.34     1.48     2.00     2.38     1.62     1.70


ANNUAL RATES OF GROWTH
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1981-1985 1.71%     .25%     .25%    1.23%    -.25%    1.23%    1.47%   -1.82%   -6.33%   -2.06%   -1.02%    2.41%     .99%    2.41%
1985-1990 2.49%    5.02%    3.85%    4.68%    5.92%     .00%    6.47%    5.92%    4.07%    4.01%    6.09%    6.82%    4.56%    3.24%
1990-1995 2.66%    4.27%    3.23%    3.40%    3.92%    -.19%    6.43%    4.17%    3.57%    2.87%    4.53%    4.54%    2.21%    2.79%
1995-2000 2.48%    4.27%    3.15%    3.36%    4.14%    -.19%    4.86%    3.34%    3.65%    2.79%    4.43%    4.50%    2.24%    2.81%

1981-2000 2.37%    3.61%    2.74%    3.26%    3.61%     .16%    4.96%    3.[illegible]3%    1.55%    2.08%    3.72%    4.67%    2.57%    2.83%
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#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

CONN. (REGION=New England)

WAGE INDEXES BY 2-DIGIT SIC

YEAR	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1981	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1982	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
1983	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
1984	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
1985	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08
1986	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
1987	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13
1988	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15
1989	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17
1990	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
1991	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22
1992	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24
1993	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27
1994	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29
1995	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32
1996	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35
1997	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37
1998	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40
1999	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43
2000	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46

ANNUAL RATES OF GROWTH

	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1981-1985	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1985-1990	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1990-1995	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1995-2000	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1981-2000	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%

#37 -- ADDABBO - HEINZ SCENARIO

FRI, MAY 13, 1983, 3:37 PM

DELAWARE (REGION=Middle Atlantic)

DEMOGRAPHIC DATA

YEAR	PEOPLE	HOUSE-HOLDS	PERSONAL INCOME	INCOME/HH	APTS	URBAN RATIO	--RATIO OF TOTAL COMMERCIAL ACTIVITY-- MINING	AGRICULT	TRANSP	CONSTRUCT	NON-MFG/ TOT EARN
			($000,000)	($1981/HH)	(RATIOS)						
1981	600410	211202	6640	31439	.1677	1.0000	.0004	.0293	.0798	.1220	.6046
1982	604853	215490	6540	30351	.1702	1.0000	.0004	.0285	.0794	.1213	.6064
1983	609329	219864	6737	30640	.1727	1.0000	.0004	.0276	.0790	.1206	.6082
1984	613838	224327	7033	31352	.1752	1.0000	.0004	.0268	.0785	.1199	.6100
1985	618381	228882	7314	31957	.1777	1.0000	.0003	.0260	.0782	.1192	.6117
1986	625245	233413	7556	32371	.1804	1.0000	.0003	.0252	.0777	.1185	.6135
1987	632185	238035	7805	32790	.1831	1.0000	.0003	.0245	.0774	.1178	.6152
1988	639202	242747	8063	33214	.1857	1.0000	.0003	.0238	.0770	.1171	.6170
1989	646298	247554	8329	33644	.1885	1.0000	.0003	.0231	.0766	.1164	.6187
1990	653471	252455	8604	34079	.1912	1.0000	.0003	.0224	.0762	.1158	.6204
1991	659549	256571	8844	34472	.1939	1.0000	.0003	.0217	.0758	.1152	.6221
1992	665603	260752	9092	34869	.1968	1.0000	.0003	.0211	.0754	.1146	.6238
1993	671873	265003	9347	35270	.1996	1.0000	.0003	.0204	.0750	.1140	.6255
1994	678121	269323	9608	35676	.2026	1.0000	.0003	.0198	.0746	.1134	.6272
1995	684428	273712	9877	36087	.2055	1.0000	.0003	.0192	.0742	.1128	.6290
1996	690793	278173	10154	36502	.2085	1.0000	.0003	.0186	.0738	.1123	.6307
1997	697217	282708	10438	36922	.2115	1.0000	.0003	.0181	.0735	.1117	.6324
1998	703702	287316	10731	37348	.2146	1.0000	.0003	.0175	.0731	.1111	.6342
1999	710246	292000	11031	37777	.2177	1.0000	.0003	.0170	.0727	.1105	.6359
2000	716852	296759	11340	38212	.2209	1.0000	.0003	.0165	.0723	.1100	.6377

ANNUAL RATES OF GROWTH

1981-1985	.74%	2.03%	2.45%	.41%	1.46%	.00%	-6.94%	-2.94%	-.51%	-.58%	.29%
1985-1990	1.11%	1.98%	3.30%	1.29%	1.48%	.00%	.00%	-2.94%	-.52%	-.58%	.28%
1990-1995	.93%	1.63%	2.80%	1.15%	1.45%	.00%	.00%	-3.04%	-.53%	-.52%	.28%
1995-2000	.93%	1.63%	2.80%	1.15%	1.46%	.00%	.00%	-2.99%	-.52%	-.50%	.28%
1981-2000	.94%	1.81%	2.86%	1.03%	1.46%	.00%	-1.50%	-2.98%	-.52%	-.54%	.28%

#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

DELAWARE (REGION=Middle Atlantic)

ENERGY PRICES

	GAS			ELECTRIC			PETROLEUM				
YEAR	RESIDENT	COMMERC	INDUSTR	RESIDENT	COMMERC	INDUSTR	RESIDENT	COMMERC	INDUSTR	COAL	LPG
	-------($1981/MMBTU)-------			-(#1981/KWH)	----(INDEX)------		-(#1981/GAL)	-----(INDEX)-----		(INDEX)	(#1981/GAL)
1981	5.32	4.88	3.84	.0642	.0616	.0451	1.2050	100.00	100.00	100.00	.4800
1982	5.88	5.44	4.40	.0669	.0642	.0470	1.1027	91.51	91.51	103.00	.5050
1983	6.01	5.57	4.53	.0665	.0638	.0466	.9820	81.49	81.49	106.09	.5312
1984	5.95	5.51	4.47	.0684	.0657	.0480	.9538	79.15	79.15	109.27	.5588
1985	5.79	5.35	4.31	.0712	.0683	.0500	.9376	77.81	77.81	112.55	.5879
1986	5.80	5.36	4.32	.0734	.0705	.0515	.9442	78.36	78.36	115.93	.6185
1987	6.03	5.59	4.55	.0747	.0717	.0524	.9508	78.91	78.91	119.41	.6506
1988	6.44	6.00	4.96	.0737	.0708	.0517	.9575	79.46	79.46	122.99	.6845
1989	6.89	6.45	5.41	.0733	.0703	.0514	.9642	80.01	80.01	126.68	.7201
1990	7.22	6.78	5.74	.0732	.0703	.0514	.9709	80.58	80.58	130.48	.7575
1991	7.38	6.94	5.90	.0741	.0711	.0520	.9826	81.54	81.54	134.39	.7969
1992	7.37	6.93	5.89	.0747	.0717	.0524	.9944	82.52	82.52	138.42	.8383
1993	7.32	6.88	5.84	.0741	.0712	.0520	1.0063	83.51	83.51	142.58	.8819
1994	7.40	6.96	5.92	.0737	.0707	.0517	1.0184	84.51	84.51	146.85	.9278
1995	7.54	7.10	6.06	.0711	.0682	.0499	1.0306	85.53	85.53	151.26	.9760
1996	7.77	7.33	6.29	.0710	.0681	.0498	1.0512	87.24	87.24	155.80	1.0268
1997	8.00	7.56	6.52	.0708	.0680	.0497	1.0722	88.98	88.98	160.47	1.0802
1998	8.23	7.79	6.75	.0706	.0678	.0496	1.0937	90.76	90.76	165.28	1.1363
1999	8.50	8.06	7.02	.0701	.0673	.0492	1.1156	92.58	92.58	170.24	1.1954
2000	8.79	8.35	7.31	.0694	.0666	.0487	1.1379	94.43	94.43	175.35	1.2576

ANNUAL RATES OF GROWTH

1981-1985	2.14%	2.33%	2.93%	2.62%	2.62%	2.62%	-6.08%	-6.08%	-6.08%	3.00%	5.20%
1985-1990	4.51%	4.85%	5.90%	.57%	.56%	.56%	.70%	.70%	.70%	3.00%	5.20%
1990-1995	.87%	.93%	1.09%	-.59%	-.59%	-.59%	1.20%	1.20%	1.20%	3.00%	5.20%
1995-2000	3.12%	3.30%	3.82%	-.48%	-.48%	-.48%	2.00%	2.00%	2.00%	3.00%	5.20%
1981-2000	2.68%	2.87%	3.45%	.41%	.41%	.41%	-.30%	-.30%	-.30%	3.00%	5.20%

#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

DELAWARE (REGION=Middle Atlantic)

VALUE ADDED INDEXES BY 2-DIGIT SIC

YEAR	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1981	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1982	.99	.89	.91	.93	.88	1.01	.90	.85	.65	.82	.81	.95	.95	.92
1983	1.01	.93	.94	.97	.92	1.02	.95	.88	.69	.85	.86	1.00	.98	.98
1984	1.04	.97	.97	1.01	.95	1.04	1.00	.92	.73	.89	.91	1.05	1.01	1.04
1985	1.07	1.01	1.01	1.05	.99	1.05	1.06	.96	.77	.92	.96	1.10	1.04	1.10
1986	1.10	1.06	1.05	1.10	1.05	1.05	1.13	1.01	.81	.96	1.02	1.18	1.09	1.14
1987	1.12	1.11	1.09	1.15	1.11	1.05	1.20	1.07	.84	1.00	1.08	1.26	1.14	1.17
1988	1.15	1.17	1.13	1.20	1.18	1.05	1.28	1.14	.87	1.04	1.15	1.34	1.19	1.21
1989	1.18	1.23	1.17	1.26	1.25	1.05	1.36	1.21	.91	1.08	1.22	1.43	1.24	1.25
1990	1.21	1.29	1.22	1.32	1.32	1.05	1.45	1.28	.94	1.12	1.29	1.53	1.30	1.29
1991	1.24	1.34	1.26	1.36	1.38	1.05	1.54	1.33	.98	1.15	1.35	1.60	1.33	1.33
1992	1.27	1.40	1.30	1.41	1.43	1.05	1.64	1.39	1.01	1.19	1.41	1.67	1.36	1.36
1993	1.31	1.46	1.34	1.46	1.49	1.05	1.75	1.45	1.05	1.22	1.47	1.75	1.39	1.40
1994	1.34	1.52	1.38	1.50	1.54	1.05	1.86	1.51	1.09	1.25	1.54	1.83	1.42	1.44
1995	1.38	1.59	1.43	1.56	1.60	1.04	1.98	1.57	1.12	1.29	1.61	1.91	1.45	1.48
1996	1.41	1.66	1.47	1.61	1.67	1.04	2.08	1.62	1.16	1.32	1.68	2.00	1.48	1.52
1997	1.45	1.73	1.52	1.66	1.74	1.04	2.18	1.68	1.21	1.36	1.76	2.09	1.51	1.56
1998	1.49	1.80	1.57	1.72	1.81	1.04	2.28	1.73	1.25	1.40	1.84	2.18	1.55	1.60
1999	1.53	1.88	1.62	1.78	1.88	1.04	2.39	1.79	1.29	1.44	1.92	2.28	1.58	1.65
2000	1.56	1.96	1.67	1.84	1.96	1.03	2.51	1.85	1.34	1.48	2.00	2.38	1.62	1.70

ANNUAL RATES OF GROWTH

1981-1985	1.71%	.25%	.25%	1.23%	-.25%	1.23%	1.47%	-1.02%	-6.33%	-2.06%	-1.02%	2.41%	.99%	2.41%
1985-1990	2.49%	5.02%	3.85%	4.68%	5.92%	.00%	6.47%	5.92%	4.07%	4.01%	6.09%	6.82%	4.56%	3.24%
1990-1995	2.66%	4.27%	3.23%	3.40%	3.92%	-.19%	6.43%	4.17%	3.57%	2.87%	4.53%	4.54%	2.21%	2.79%
1995-2000	2.48%	4.27%	3.15%	3.36%	4.14%	-.19%	4.86%	3.34%	3.65%	2.79%	4.43%	4.50%	2.24%	2.81%
1981-2000	2.37%	3.61%	2.74%	3.26%	3.61%	.16%	4.96%	3.29%	1.55%	2.08%	3.72%	4.67%	2.57%	2.83%

#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

DELAWARE (REGION=Middle Atlantic)

WAGE INDEXES BY 2-DIGIT SIC

YEAR	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1981	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1982	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
1983	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
1984	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
1985	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08
1986	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
1987	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13
1988	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15
1989	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17
1990	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
1991	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22
1992	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24
1993	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27
1994	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29
1995	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32
1996	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35
1997	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37
1998	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40
1999	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43
2000	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46

ANNUAL RATES OF GROWTH

1981-1985	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1985-1990	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1990-1995	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1995-2000	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1981-2000	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%

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FLORIDA (REGION=South Atlantic)

DEMOGRAPHIC DATA

YEAR	PEOPLE	HOUSE-HOLDS	PERSONAL INCOME	INCOME/HH	APTS	URBAN RATIO	--RATIO OF TOTAL COMMERCIAL ACTIVITY-- MINING	AGRICULT	TRANSP	CONSTRUCT	NON-MFG/ TOT EARN
			($000,000)	($1981/HH)	(RATIOS)						
1981	9978580	3880165	103582	26675	.2403	1.0000	.0036	.0333	.0981	.0978	.8654
1982	10224054	4024508	101949	25332	.2439	1.0000	.0035	.0322	.0981	.0973	.8660
1983	10475566	4174219	105008	25156	.2475	1.0000	.0034	.0312	.0981	.0967	.8665
1984	10733266	4329499	109628	25321	.2510	1.0000	.0034	.0302	.0980	.0962	.8671
1985	10997304	4490556	114013	25390	.2547	1.0000	.0033	.0292	.0980	.0956	.8676
1986	11189756	4608209	117776	25558	.2584	1.0000	.0032	.0282	.0980	.0951	.8682
1987	11385576	4728944	121662	25727	.2622	1.0000	.0031	.0273	.0980	.0945	.8687
1988	11584822	4852843	125677	25898	.2660	1.0000	.0031	.0264	.0980	.0940	.8692
1989	11787556	4979988	129825	26069	.2699	1.0000	.0030	.0256	.0979	.0935	.8698
1990	11993838	5110464	134109	26242	.2738	1.0000	.0029	.0247	.0979	.0929	.8703
1991	12166550	5219828	137864	26412	.2778	1.0000	.0028	.0238	.0979	.0923	.8708
1992	12341748	5331532	141724	26582	.2818	1.0000	.0027	.0230	.0979	.0917	.8713
1993	12519470	5445627	145692	26754	.2860	1.0000	.0026	.0222	.0979	.0911	.8718
1994	12699750	5562163	149772	26927	.2902	1.0000	.0025	.0214	.0979	.0905	.8723
1995	12882626	5681193	153965	27101	.2943	1.0000	.0024	.0207	.0979	.0900	.8728
1996	13068136	5802770	158277	27276	.2986	1.0000	.0024	.0199	.0979	.0894	.8733
1997	13256318	5926949	162708	27452	.3029	1.0000	.0023	.0192	.0979	.0888	.8738
1998	13447210	6053786	167264	27630	.3074	1.0000	.0022	.0186	.0979	.0882	.8743
1999	13640850	6183337	171948	27808	.3119	1.0000	.0021	.0179	.0979	.0877	.8748
2000	13837278	6315660	176762	27988	.3164	1.0000	.0021	.0173	.0979	.0871	.8753

ANNUAL RATES OF GROWTH

1981-1985	2.46%	3.72%	2.45%	-1.23%	1.47%	.00%	-2.15%	-3.23%	-.03%	-.57%	.06%
1985-1990	1.75%	2.62%	3.30%	.66%	1.46%	.00%	-2.55%	-3.29%	-.02%	-.57%	.06%
1990-1995	1.44%	2.14%	2.80%	.65%	1.45%	.00%	-3.71%	-3.47%	.00%	-.63%	.06%
1995-2000	1.44%	2.14%	2.80%	.65%	1.46%	.00%	-2.64%	-3.52%	.00%	-.65%	.06%
1981-2000	1.74%	2.60%	2.86%	.25%	1.46%	.00%	-2.80%	-3.39%	-.01%	-.61%	.06%

#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

FLORIDA (REGION=South Atlantic)

ENERGY PRICES

YEAR	GAS RESIDENT	GAS COMMERC	GAS INDUSTR	ELECTRIC RESIDENT	ELECTRIC COMMERC	ELECTRIC INDUSTR	PETROLEUM RESIDENT	PETROLEUM COMMERC	PETROLEUM INDUSTR	COAL	LPG
	($1981/MMBTU)			($1981/KWH)	(INDEX)		($1981/GAL)	(INDEX)		(INDEX)	($1981/GAL)
1981	5.18	3.58	3.09	.0524	.0517	.0368	1.2050	100.00	100.00	100.00	.4800
1982	5.74	4.14	3.65	.0598	.0590	.0420	1.1027	91.51	91.51	103.00	.5050
1983	5.87	4.27	3.78	.0593	.0585	.0416	.9820	81.49	81.49	106.09	.5312
1984	5.81	4.21	3.72	.0625	.0617	.0439	.9530	79.15	79.15	109.27	.5588
1985	5.65	4.05	3.56	.0633	.0625	.0445	.9376	77.01	77.01	112.55	.5879
1986	5.66	4.06	3.57	.0652	.0643	.0458	.9442	78.36	78.36	115.93	.6185
1987	5.89	4.29	3.80	.0637	.0628	.0447	.9508	78.91	78.91	119.41	.6506
1988	6.30	4.70	4.21	.0668	.0659	.0469	.9575	79.46	79.46	122.99	.6845
1989	6.75	5.15	4.66	.0681	.0672	.0479	.9642	80.01	80.01	126.68	.7201
1990	7.08	5.48	4.99	.0701	.0691	.0492	.9709	80.58	80.58	130.48	.7575
1991	7.24	5.64	5.15	.0697	.0687	.0489	.9826	81.54	81.54	134.39	.7969
1992	7.23	5.63	5.14	.0736	.0726	.0517	.9944	82.52	82.52	138.42	.8383
1993	7.18	5.58	5.09	.0684	.0675	.0480	1.0063	83.51	83.51	142.58	.8819
1994	7.26	5.66	5.17	.0749	.0739	.0526	1.0184	84.51	84.51	146.85	.9278
1995	7.40	5.80	5.31	.0678	.0669	.0477	1.0306	85.53	85.53	151.26	.9760
1996	7.63	6.03	5.54	.0740	.0730	.0520	1.0512	87.24	87.24	155.80	1.0268
1997	7.86	6.26	5.77	.0688	.0679	.0484	1.0722	88.98	88.98	160.47	1.0802
1998	8.09	6.49	6.00	.0745	.0735	.0524	1.0937	90.76	90.76	165.28	1.1363
1999	8.36	6.76	6.27	.0691	.0681	.0485	1.1156	92.58	92.58	170.24	1.1954
2000	8.65	7.05	6.56	.0735	.0725	.0517	1.1379	94.43	94.43	175.35	1.2576

ANNUAL RATES OF GROWTH

1981-1985	2.20%	3.13%	3.60%	4.84%	4.83%	4.83%	-6.08%	-6.08%	-6.08%	3.00%	5.20%
1985-1990	4.62%	6.23%	6.99%	2.05%	2.05%	2.05%	.70%	.70%	.70%	3.00%	5.20%
1990-1995	.89%	1.14%	1.25%	-.65%	-.65%	-.65%	1.20%	1.20%	1.20%	3.00%	5.20%
1995-2000	3.17%	3.98%	4.32%	1.62%	1.63%	1.62%	2.00%	2.00%	2.00%	3.00%	5.20%
1981-2000	2.74%	3.63%	4.04%	1.80%	1.80%	1.80%	-.30%	-.30%	-.30%	3.00%	5.20%

037 -- ADDABBO - HEINZ SCENARIO

FRI, MAY 13, 1983, 3:37 PM

FLORIDA (REGION=South Atlantic)

VALUE ADDED INDEXES BY 2-DIGIT SIC

YEAR	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1981	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1982	.99	.89	.91	.93	.88	1.01	.90	.85	.65	.82	.81	.95	.95	.92
1983	1.01	.93	.94	.97	.92	1.02	.95	.88	.69	.85	.86	1.00	.98	.98
1984	1.04	.97	.97	1.01	.95	1.04	1.00	.92	.73	.89	.91	1.05	1.01	1.04
1985	1.07	1.01	1.01	1.05	.99	1.05	1.06	.96	.77	.92	.96	1.10	1.04	1.10
1986	1.10	1.06	1.05	1.10	1.05	1.05	1.13	1.01	.81	.96	1.02	1.18	1.09	1.14
1987	1.12	1.11	1.09	1.15	1.11	1.05	1.20	1.07	.84	1.00	1.08	1.26	1.14	1.17
1988	1.15	1.17	1.13	1.20	1.18	1.05	1.28	1.14	.87	1.04	1.15	1.34	1.19	1.21
1989	1.18	1.23	1.17	1.26	1.25	1.05	1.36	1.21	.91	1.08	1.22	1.43	1.24	1.25
1990	1.21	1.29	1.22	1.32	1.32	1.05	1.45	1.28	.94	1.12	1.29	1.53	1.30	1.29
1991	1.24	1.34	1.26	1.36	1.38	1.05	1.54	1.33	.98	1.15	1.35	1.60	1.33	1.33
1992	1.27	1.40	1.30	1.41	1.43	1.05	1.64	1.39	1.01	1.19	1.41	1.67	1.36	1.36
1993	1.31	1.46	1.34	1.46	1.49	1.05	1.75	1.45	1.05	1.22	1.47	1.75	1.39	1.40
1994	1.34	1.52	1.38	1.50	1.54	1.05	1.86	1.51	1.09	1.25	1.54	1.83	1.42	1.44
1995	1.38	1.59	1.43	1.56	1.60	1.04	1.98	1.57	1.12	1.29	1.61	1.91	1.45	1.48
1996	1.41	1.66	1.47	1.61	1.67	1.04	2.08	1.62	1.16	1.32	1.68	2.00	1.48	1.52
1997	1.45	1.73	1.52	1.66	1.74	1.04	2.18	1.68	1.21	1.36	1.76	2.09	1.51	1.56
1998	1.49	1.80	1.57	1.72	1.81	1.04	2.28	1.73	1.25	1.40	1.84	2.18	1.55	1.60
1999	1.53	1.88	1.62	1.78	1.88	1.04	2.39	1.79	1.29	1.44	1.92	2.28	1.58	1.65
2000	1.56	1.96	1.67	1.84	1.96	1.03	2.51	1.85	1.34	1.48	2.00	2.38	1.62	1.70

ANNUAL RATES OF GROWTH

1981-1985	1.71%	.25%	.25%	1.23%	-.25%	1.23%	1.47%	-1.02%	-6.33%	-2.06%	-1.02%	2.41%	.99%	2.41%
1985-1990	2.49%	5.02%	3.85%	4.68%	5.92%	.00%	6.47%	5.92%	4.07%	4.01%	6.09%	6.82%	4.56%	3.24%
1990-1995	2.66%	4.27%	3.23%	3.40%	3.92%	-.19%	6.43%	4.17%	3.57%	2.87%	4.53%	4.54%	2.21%	2.79%
1995-2000	2.48%	4.27%	3.15%	3.36%	4.14%	-.19%	4.86%	3.34%	3.65%	2.79%	4.43%	4.58%	2.24%	2.81%
1981-2000	2.37%	3.61%	2.74%	3.26%	3.61%	.16%	4.96%	3.29%	1.55%	2.08%	3.72%	4.67%	2.57%	2.83%

#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

FLORIDA (REGION=South Atlantic)

WAGE INDEXES BY 2-DIGIT SIC

YEAR	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1981	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1982	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
1983	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
1984	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
1985	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08
1986	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
1987	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13
1988	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15
1989	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17
1990	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
1991	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22
1992	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24
1993	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27
1994	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29
1995	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32
1996	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35
1997	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37
1998	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40
1999	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43
2000	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46

ANNUAL RATES OF GROWTH

	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1981-1985	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1985-1990	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1990-1995	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1995-2000	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1981-2000	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%

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#37 -- ADDABBO - HEINZ SCENARIO                                                         FRI, MAY 13, 1983,  3:37 PM

GEORGIA  (REGION=South Atlantic       )

                                                  DEMOGRAPHIC DATA
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                                                                      --RATIO OF TOTAL COMMERCIAL ACTIVITY--
                           HOUSE-   PERSONAL                     URBAN  ------------------------------------  NON-MFG/
    YEAR     PEOPLE        HOLDS      INCOME  INCOME/HH    APTS    RATIO   MINING  AGRICULT    TRANSP CONSTRUCT  TOT EARN
--------   --------     --------    --------   --------  -------- -------- -------- --------  -------- --------  --------
                                 ($000,000) ($1981/HH) ------------------------(RATIOS)--------------------------------
    1981    5517001      1914388       49797      26013     .1262   1.0000    .0051    .0420     .1079    .0782     .7517
    1982    5570516      1957571       49050      25057     .1280   1.0000    .0050    .0415     .1078    .0780     .7528
    1983    5624550      2001812       50522      25238     .1300   1.0000    .0049    .0403     .1076    .0779     .7539
    1984    5679108      2047053       52744      25766     .1319   1.0000    .0048    .0392     .1075    .0777     .7549
    1985    5734196      2093316       54854      26204     .1338   1.0000    .0047    .0380     .1074    .0776     .7560
    1986    5791530      2132252       56664      26575     .1357   1.0000    .0047    .0369     .1072    .0774     .7571
    1987    5849453      2171912       58534      26951     .1377   1.0000    .0046    .0359     .1071    .0772     .7581
    1988    5907947      2212309       60466      27332     .1398   1.0000    .0045    .0348     .1070    .0771     .7592
    1989    5967026      2253458       62461      27718     .1419   1.0000    .0044    .0338     .1068    .0769     .7602
    1990    6026696      2295373       64523      28110     .1439   1.0000    .0044    .0329     .1067    .0767     .7613
    1991    6081539      2332328       66329      28439     .1459   1.0000    .0044    .0320     .1066    .0765     .7624
    1992    6136881      2369879       68187      28772     .1480   1.0000    .0044    .0312     .1065    .0763     .7635
    1993    6192726      2408034       70096      29109     .1501   1.0000    .0044    .0303     .1064    .0761     .7646
    1994    6249080      2446803       72058      29450     .1522   1.0000    .0044    .0295     .1063    .0759     .7657
    1995    6305946      2486197       74076      29795     .1544   1.0000    .0044    .0287     .1062    .0757     .7668
    1996    6363330      2526224       76150      30144     .1566   1.0000    .0044    .0280     .1061    .0755     .7679
    1997    6421236      2566896       78282      30497     .1589   1.0000    .0044    .0272     .1060    .0753     .7690
    1998    6479669      2608223       80474      30854     .1611   1.0000    .0044    .0265     .1059    .0751     .7702
    1999    6538634      2650215       82720      31215     .1634   1.0000    .0044    .0258     .1058    .0749     .7713
    2000    6598135      2692883       85044      31581     .1657   1.0000    .0044    .0251     .1057    .0747     .7724


ANNUAL RATES OF GROWTH
----------------------

1981-1985         .97%      2.26%      2.45%       .18%     1.47%      .00%   -2.02%   -2.93%     -.12%     -.19%      .14%
1985-1990        1.00%      1.86%      3.30%      1.41%     1.47%      .00%   -1.31%   -2.84%     -.13%     -.23%      .14%
1990-1995         .91%      1.61%      2.80%      1.17%     1.42%      .00%     .00%   -2.69%     -.09%     -.26%      .14%
1995-2000         .91%      1.61%      2.80%      1.17%     1.42%      .00%     .00%   -2.64%     -.09%     -.27%      .15%

1981-2000         .95%      1.81%      2.86%      1.03%     1.44%      .00%    -.77%   -2.77%     -.11%     -.24%      .14%
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837 -- ADDABBO - HEINZ SCENARIO                                                                    FRI, MAY 13, 1983,  3:37 PM

GEORGIA  (REGION=South Atlantic       )

                                                 ENERGY PRICES
                                                 -------------

                        GAS                                ELECTRIC                               PETROLEUM
           ----------------------------   ----------------------------   ----------------------------
    YEAR   RESIDENT    COMMERC    INDUSTR   RESIDENT    COMMERC    INDUSTR   RESIDENT    COMMERC    INDUSTR       COAL        LPG
--------   --------   --------   --------   --------   --------   --------   --------   --------   --------   --------   --------
           -------( $1981/MMBTU)-------($1981/KWH) ----( INDEX)------($1981/GAL) -----( INDEX)-----  ( INDEX)($1981/GAL)

    1981       4.57       3.54       3.53      .0524      .0517      .0360     1.2058     100.00     100.00     100.00      .4800
    1982       5.13       4.10       4.09      .0598      .0590      .0420     1.1027      91.51      91.51     103.00      .5050
    1983       5.26       4.23       4.22      .0593      .0585      .0416      .9820      81.49      81.49     106.09      .5312
    1984       5.20       4.17       4.16      .0625      .0617      .0439      .9538      79.15      79.15     109.27      .5588
    1985       5.04       4.01       4.00      .0633      .0625      .0445      .9376      77.81      77.81     112.55      .5879
    1986       5.05       4.02       4.01      .0652      .0643      .0458      .9442      78.36      78.36     115.93      .6185
    1987       5.20       4.25       4.24      .0637      .0628      .0447      .9508      78.91      78.91     119.41      .6506
    1988       5.69       4.66       4.65      .0668      .0659      .0469      .9575      79.46      79.46     122.99      .6845
    1989       6.14       5.11       5.10      .0681      .0672      .0479      .9642      80.01      80.01     126.68      .7201
    1990       6.47       5.44       5.43      .0701      .0691      .0492      .9709      80.58      80.58     130.48      .7575
    1991       6.63       5.60       5.59      .0697      .0687      .0489      .9826      81.54      81.54     134.39      .7969
    1992       6.62       5.59       5.58      .0736      .0726      .0517      .9944      82.52      82.52     138.42      .8383
    1993       6.57       5.54       5.53      .0684      .0675      .0480     1.0063      83.51      83.51     142.58      .8819
    1994       6.65       5.62       5.61      .0749      .0739      .0526     1.0184      84.51      84.51     146.85      .9278
    1995       6.79       5.76       5.75      .0678      .0669      .0477     1.0306      85.53      85.53     151.26      .9760
    1996       7.02       5.99       5.98      .0748      .0738      .0520     1.0512      87.24      87.24     155.80     1.0268
    1997       7.25       6.22       6.21      .0688      .0679      .0484     1.0722      88.98      88.98     160.47     1.0802
    1998       7.48       6.45       6.44      .0745      .0735      .0524     1.0937      90.76      90.76     165.28     1.1363
    1999       7.75       6.72       6.71      .0691      .0681      .0485     1.1156      92.58      92.58     170.24     1.1954
    2000       8.04       7.01       7.00      .0735      .0725      .0517     1.1379      94.43      94.43     175.35     1.2576


ANNUAL RATES OF GROWTH
---------------------

1981-1985     2.48%      3.17%      3.17%      4.84%      4.83%      4.83%     -6.08%     -6.00%     -6.00%      3.00%      5.20%
1985-1990     5.12%      6.29%      6.30%      2.05%      2.05%      2.05%       .70%       .70%       .70%      3.00%      5.20%
1990-1995      .97%      1.15%      1.15%      -.65%      -.65%      -.65%      1.20%      1.20%      1.20%      3.00%      5.20%
1995-2000     3.44%      4.01%      4.01%      1.62%      1.63%      1.62%      2.00%      2.00%      2.00%      3.00%      5.20%

1981-2000     3.02%      3.66%      3.67%      1.80%      1.80%      1.80%      -.30%      -.30%      -.30%      3.00%      5.20%
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#37 -- ADDABBO - HEINZ SCENARIO

FRI, MAY 13, 1983, 3:37 PM

GEORGIA (REGION=South Atlantic)

VALUE ADDED INDEXES BY 2-DIGIT SIC

YEAR	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1981	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1982	.99	.89	.91	.93	.88	1.01	.90	.85	.65	.82	.81	.95	.95	.92
1983	1.01	.93	.94	.97	.92	1.02	.95	.88	.69	.85	.86	1.00	.98	.98
1984	1.04	.97	.97	1.01	.95	1.04	1.00	.92	.73	.89	.91	1.05	1.01	1.04
1985	1.07	1.01	1.01	1.05	.99	1.05	1.06	.96	.77	.92	.96	1.10	1.04	1.10
1986	1.10	1.06	1.05	1.10	1.05	1.05	1.13	1.01	.81	.96	1.02	1.18	1.09	1.14
1987	1.12	1.11	1.09	1.15	1.11	1.05	1.20	1.07	.84	1.00	1.08	1.26	1.14	1.17
1988	1.15	1.17	1.13	1.20	1.18	1.05	1.28	1.14	.87	1.04	1.15	1.34	1.19	1.21
1989	1.18	1.23	1.17	1.26	1.25	1.05	1.36	1.21	.91	1.08	1.22	1.43	1.24	1.25
1990	1.21	1.29	1.22	1.32	1.32	1.05	1.45	1.28	.94	1.12	1.29	1.53	1.30	1.29
1991	1.24	1.34	1.26	1.36	1.38	1.05	1.54	1.33	.98	1.15	1.35	1.60	1.33	1.33
1992	1.27	1.40	1.30	1.41	1.43	1.05	1.64	1.39	1.01	1.19	1.41	1.67	1.36	1.36
1993	1.31	1.46	1.34	1.46	1.49	1.05	1.75	1.45	1.05	1.22	1.47	1.75	1.39	1.40
1994	1.34	1.52	1.38	1.50	1.54	1.05	1.86	1.51	1.09	1.25	1.54	1.83	1.42	1.44
1995	1.38	1.59	1.43	1.56	1.60	1.04	1.98	1.57	1.12	1.29	1.61	1.91	1.45	1.48
1996	1.41	1.66	1.47	1.61	1.67	1.04	2.08	1.62	1.16	1.32	1.68	2.00	1.48	1.52
1997	1.45	1.73	1.52	1.66	1.74	1.04	2.18	1.68	1.21	1.36	1.76	2.09	1.51	1.56
1998	1.49	1.80	1.57	1.72	1.81	1.04	2.28	1.73	1.25	1.40	1.84	2.18	1.55	1.60
1999	1.53	1.88	1.62	1.78	1.88	1.04	2.39	1.79	1.29	1.44	1.92	2.28	1.58	1.65
2000	1.56	1.96	1.67	1.84	1.96	1.03	2.51	1.85	1.34	1.48	2.00	2.38	1.62	1.70

ANNUAL RATES OF GROWTH

1981-1985	1.71%	.25%	.25%	1.23%	-.25%	1.23%	1.47%	-1.02%	-6.33%	-2.06%	-1.02%	2.41%	.99%	2.41%
1985-1990	2.49%	5.02%	3.85%	4.68%	5.92%	.00%	6.47%	5.92%	4.07%	4.01%	6.09%	6.82%	4.56%	3.24%
1990-1995	2.66%	4.27%	3.23%	3.40%	3.92%	-.19%	6.43%	4.17%	3.57%	2.87%	4.53%	4.54%	2.21%	2.79%
1995-2000	2.40%	4.27%	3.15%	3.36%	4.14%	-.19%	4.86%	3.34%	3.65%	2.79%	4.43%	4.50%	2.24%	2.81%
1981-2000	2.37%	3.[illegible]	2.74%	3.26%	3.61%	.16%	4.96%	3.29%	1.55%	2.08%	3.72%	4.67%	2.57%	2.93%

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#37 -- ADDABBO - HEINZ SCENARIO                                          FRI, MAY 13, 1983,  3:37 PM

GEORGIA  (REGION=South Atlantic        )

                                   WAGE INDEXES BY 2-DIGIT SIC
                                   ---------------------------

                                                                                       PRIMARY   FABRIC.            ELECTRIC
YEAR      FOOD   TEXTILE    LUMBER     PAPER  CHEMICAL    PETROL    RUBBER     STONE     METAL     METAL   MACHINE   MACHINE    TRANSP     OTHER
----  --------  --------  --------  --------  --------  --------  --------  --------  --------  --------  --------  --------  --------  --------
1981      1.00      1.00      1.00      1.00      1.00      1.00      1.00      1.00      1.00      1.00      1.00      1.00      1.00      1.00
1982      1.02      1.02      1.02      1.02      1.02      1.02      1.02      1.02      1.02      1.02      1.02      1.02      1.02      1.02
1983      1.04      1.04      1.04      1.04      1.04      1.04      1.04      1.04      1.04      1.04      1.04      1.04      1.04      1.04
1984      1.06      1.06      1.06      1.06      1.06      1.06      1.06      1.06      1.06      1.06      1.06      1.06      1.06      1.06
1985      1.08      1.08      1.08      1.08      1.08      1.08      1.08      1.08      1.08      1.08      1.08      1.08      1.08      1.08
1986      1.10      1.10      1.10      1.10      1.10      1.10      1.10      1.10      1.10      1.10      1.10      1.10      1.10      1.10
1987      1.13      1.13      1.13      1.13      1.13      1.13      1.13      1.13      1.13      1.13      1.13      1.13      1.13      1.13
1988      1.15      1.15      1.15      1.15      1.15      1.15      1.15      1.15      1.15      1.15      1.15      1.15      1.15      1.15
1989      1.17      1.17      1.17      1.17      1.17      1.17      1.17      1.17      1.17      1.17      1.17      1.17      1.17      1.17
1990      1.20      1.20      1.20      1.20      1.20      1.20      1.20      1.20      1.20      1.20      1.20      1.20      1.20      1.20
1991      1.22      1.22      1.22      1.22      1.22      1.22      1.22      1.22      1.22      1.22      1.22      1.22      1.22      1.22
1992      1.24      1.24      1.24      1.24      1.24      1.24      1.24      1.24      1.24      1.24      1.24      1.24      1.24      1.24
1993      1.27      1.27      1.27      1.27      1.27      1.27      1.27      1.27      1.27      1.27      1.27      1.27      1.27      1.27
1994      1.29      1.29      1.29      1.29      1.29      1.29      1.29      1.29      1.29      1.29      1.29      1.29      1.29      1.29
1995      1.32      1.32      1.32      1.32      1.32      1.32      1.32      1.32      1.32      1.32      1.32      1.32      1.32      1.32
1996      1.35      1.35      1.35      1.35      1.35      1.35      1.35      1.35      1.35      1.35      1.35      1.35      1.35      1.35
1997      1.37      1.37      1.37      1.37      1.37      1.37      1.37      1.37      1.37      1.37      1.37      1.37      1.37      1.37
1998      1.40      1.40      1.40      1.40      1.40      1.40      1.40      1.40      1.40      1.40      1.40      1.40      1.40      1.40
1999      1.43      1.43      1.43      1.43      1.43      1.43      1.43      1.43      1.43      1.43      1.43      1.43      1.43      1.43
2000      1.46      1.46      1.46      1.46      1.46      1.46      1.46      1.46      1.46      1.46      1.46      1.46      1.46      1.46


ANNUAL RATES OF GROWTH
----------------------

1981-1985 2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%
1985-1990 2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%
1990-1995 2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%
1995-2000 2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%

1981-2000 2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%
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#37 -- ADDABBO - HEINZ SCENARIO                                                                        FRI, MAY 13, 1983,  3:37 PM

IDAHO    (REGION=Northwest              )

                                                   DEMOGRAPHIC DATA
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                                                                           --RATIO OF TOTAL COMMERCIAL ACTIVITY--
                        HOUSE-   PERSONAL                           URBAN  --------------------------------------  NON-MFG/
    YEAR     PEOPLE      HOLDS     INCOME  INCOME/HH       APTS     RATIO    MINING  AGRICULT    TRANSP CONSTRUCT  TOT EARN
--------   --------   --------   --------   --------   --------  --------  --------  --------  --------  --------  --------
                               ($000,000) ($1981/HH) ---------------------------(RATIOS)-------------------------------------
    1981     962766     334335       8574      25645      .0048    1.0000     .0149     .1427     .0793     .0784     .8286
    1982     980866     345001       8445      24479      .0061    1.0000     .0145     .1398     .0790     .0782     .8285
    1983     999307     356006       8699      24434      .0073    1.0000     .0141     .1370     .0787     .0780     .8285
    1984    1018093     367362       9081      24721      .0087    1.0000     .0137     .1343     .0784     .0777     .8265
    1985    1037234     379082       9445      24915      .0900    1.0000     .0133     .1316     .0781     .0775     .8284
    1986    1050303     387156       9756      25200      .0913    1.0000     .0130     .1290     .0778     .0772     .8284
    1987    1063536     395402      10078      25489      .0927    1.0000     .0126     .1264     .0775     .0770     .8283
    1988    1076937     403824      10411      25781      .0940    1.0000     .0123     .1239     .0772     .0768     .8283
    1989    1090506     412426      10755      26076      .0955    1.0000     .0120     .1215     .0769     .0765     .8283
    1990    1104246     421211      11109      26375      .0969    1.0000     .0116     .1190     .0766     .0763     .8282
    1991    1118160     429467      11421      26592      .0982    1.0000     .0112     .1166     .0763     .0761     .8281
    1992    1132249     437884      11740      26811      .0995    1.0000     .0108     .1142     .0760     .0759     .8280
    1993    1146515     446466      12069      27032      .1010    1.0000     .0105     .1118     .0757     .0757     .8279
    1994    1160961     455217      12407      27255      .1024    1.0000     .0101     .1095     .0754     .0755     .8278
    1995    1175589     464139      12754      27480      .1039    1.0000     .0098     .1073     .0751     .0753     .8277
    1996    1190401     473237      13111      27706      .1054    1.0000     .0095     .1050     .0748     .0751     .8276
    1997    1205400     482512      13479      27934      .1068    1.0000     .0091     .1029     .0745     .0749     .8275
    1998    1220588     491969      13856      28164      .1083    1.0000     .0088     .1008     .0742     .0747     .8274
    1999    1235968     501612      14244      28396      .1098    1.0000     .0085     .0987     .0740     .0745     .8273
    2000    1251540     511444      14643      28630      .1113    1.0000     .0083     .0967     .0737     .0743     .8272


ANNUAL RATES OF GROWTH
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1981-1985      1.88%      3.19%      2.45%      -.72%      1.50%      .00%    -2.80%    -2.00%     -.38%     -.29%     -.01%
1985-1990      1.26%      2.13%      3.30%      1.15%      1.49%      .00%    -2.70%    -1.99%     -.39%     -.31%     -.00%
1990-1995      1.26%      1.96%      2.80%       .82%      1.40%      .00%    -3.32%    -2.05%     -.39%     -.26%     -.01%
1995-2000      1.26%      1.96%      2.80%       .82%      1.39%      .00%    -3.27%    -2.06%     -.38%     -.27%     -.01%

1981-2000      1.39%      2.26%      2.86%       .58%      1.44%      .00%    -3.03%    -2.03%     -.38%     -.28%     -.01%
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#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

IDAHO (REGION=Northwest)

ENERGY PRICES

YEAR	GAS RESIDENT	GAS COMMERC	GAS INDUSTR	ELECTRIC RESIDENT	ELECTRIC COMMERC	ELECTRIC INDUSTR	PETROLEUM RESIDENT	PETROLEUM COMMERC	PETROLEUM INDUSTR	COAL	LPG
	($1981/MMBTU)			($1981/KWH)	(INDEX)		($1981/GAL)	(INDEX)		(INDEX)	($1981/GAL)
1981	5.49	4.68	3.87	.0263	.0272	.0134	1.2050	100.00	100.00	100.00	.4800
1982	6.05	5.24	4.43	.0276	.0286	.0140	1.1027	91.51	91.51	103.00	.5050
1983	6.10	5.37	4.56	.0266	.0275	.0135	.9820	81.49	81.49	106.09	.5312
1984	6.12	5.31	4.50	.0280	.0290	.0142	.9538	79.15	79.15	109.27	.5588
1985	5.96	5.15	4.34	.0288	.0298	.0146	.9376	77.81	77.81	112.55	.5879
1986	5.97	5.16	4.35	.0289	.0299	.0147	.9442	78.36	78.36	115.93	.6185
1987	6.20	5.39	4.58	.0290	.0300	.0147	.9508	78.91	78.91	119.41	.6506
1988	6.61	5.80	4.99	.0310	.0329	.0162	.9575	79.46	79.46	122.99	.6845
1989	7.06	6.25	5.44	.0320	.0331	.0162	.9642	80.01	80.01	126.68	.7201
1990	7.39	6.58	5.77	.0318	.0329	.0162	.9709	80.58	80.58	130.48	.7575
1991	7.55	6.74	5.93	.0328	.0340	.0167	.9826	81.54	81.54	134.39	.7969
1992	7.54	6.73	5.92	.0356	.0368	.0181	.9944	82.52	82.52	138.42	.8383
1993	7.49	6.68	5.87	.0381	.0394	.0193	1.0063	83.51	83.51	142.58	.8819
1994	7.57	6.76	5.95	.0403	.0417	.0205	1.0184	84.51	84.51	146.85	.9278
1995	7.71	6.90	6.09	.0420	.0434	.0214	1.0306	85.53	85.53	151.26	.9760
1996	7.94	7.13	6.32	.0434	.0449	.0221	1.0512	87.24	87.24	155.80	1.0268
1997	8.17	7.36	6.55	.0447	.0462	.0227	1.0722	88.98	88.98	160.47	1.0802
1998	8.40	7.59	6.78	.0457	.0473	.0232	1.0937	90.76	90.76	165.28	1.1363
1999	8.67	7.86	7.05	.0453	.0468	.0230	1.1156	92.58	92.58	170.24	1.1954
2000	8.96	8.15	7.34	.0447	.0462	.0227	1.1379	94.43	94.43	175.35	1.2576

ANNUAL RATES OF GROWTH

1981-1985	2.07%	2.42%	2.91%	2.31%	2.30%	2.30%	-6.00%	-6.00%	-6.00%	3.00%	5.20%
1985-1990	4.39%	5.02%	5.06%	2.00%	2.01%	2.01%	.70%	.70%	.70%	3.00%	5.20%
1990-1995	.85%	.95%	1.09%	5.74%	5.74%	5.74%	1.20%	1.20%	1.20%	3.00%	5.20%
1995-2000	3.05%	3.39%	3.80%	1.26%	1.26%	1.26%	2.00%	2.00%	2.00%	3.00%	5.20%
1981-2000	2.61%	2.96%	3.43%	2.84%	2.84%	2.84%	-.30%	-.30%	-.30%	3.00%	5.20%

037 -- ADDABBO - HEINZ SCENARIO

FRI, MAY 13, 1983, 3:37 PM

IDAHO (REGION=Northwest)

VALUE ADDED INDEXES BY 2-DIGIT SIC

YEAR	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1981	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1982	.99	.89	.91	.93	.88	1.01	.90	.85	.65	.82	.81	.95	.95	.92
1983	1.01	.93	.94	.97	.92	1.02	.95	.88	.69	.85	.86	1.00	.90	.98
1984	1.04	.97	.97	1.01	.95	1.04	1.00	.92	.73	.89	.91	1.05	1.01	1.04
1985	1.07	1.01	1.01	1.05	.99	1.05	1.06	.96	.77	.92	.96	1.10	1.04	1.10
1986	1.10	1.06	1.05	1.10	1.05	1.05	1.13	1.01	.81	.96	1.02	1.18	1.09	1.14
1987	1.12	1.11	1.09	1.15	1.11	1.05	1.20	1.07	.84	1.00	1.08	1.26	1.14	1.17
1988	1.15	1.17	1.13	1.20	1.18	1.05	1.28	1.14	.87	1.04	1.15	1.34	1.19	1.21
1989	1.18	1.23	1.17	1.26	1.25	1.05	1.36	1.21	.91	1.08	1.22	1.43	1.24	1.25
1990	1.21	1.29	1.22	1.32	1.32	1.05	1.45	1.28	.94	1.12	1.29	1.53	1.30	1.29
1991	1.24	1.34	1.26	1.36	1.38	1.05	1.54	1.33	.98	1.15	1.35	1.60	1.33	1.33
1992	1.27	1.40	1.30	1.41	1.43	1.05	1.64	1.39	1.01	1.19	1.41	1.67	1.36	1.36
1993	1.31	1.46	1.34	1.46	1.49	1.05	1.75	1.45	1.05	1.22	1.47	1.75	1.39	1.40
1994	1.34	1.52	1.38	1.50	1.54	1.05	1.86	1.51	1.09	1.25	1.54	1.83	1.42	1.44
1995	1.38	1.59	1.43	1.56	1.60	1.04	1.98	1.57	1.12	1.29	1.61	1.91	1.45	1.48
1996	1.41	1.66	1.47	1.61	1.67	1.04	2.08	1.62	1.16	1.32	1.68	2.00	1.48	1.52
1997	1.45	1.73	1.52	1.66	1.74	1.04	2.18	1.68	1.21	1.36	1.76	2.09	1.51	1.56
1998	1.49	1.80	1.57	1.72	1.81	1.04	2.28	1.73	1.25	1.40	1.84	2.18	1.55	1.60
1999	1.53	1.88	1.62	1.78	1.88	1.04	2.39	1.79	1.29	1.44	1.92	2.28	1.58	1.65
2000	1.56	1.96	1.67	1.84	1.96	1.03	2.51	1.85	1.34	1.48	2.00	2.38	1.62	1.70

ANNUAL RATES OF GROWTH

1981-1985	1.71%	.25%	.25%	1.23%	-.25%	1.23%	1.47%	-1.02%	-6.33%	-2.06%	-1.02%	2.41%	.99%	2.41%
1985-1990	2.49%	5.02%	3.85%	4.68%	5.92%	.00%	6.47%	5.92%	4.07%	4.01%	6.09%	6.02%	4.56%	3.24%
1990-1995	2.66%	4.27%	3.23%	3.40%	3.92%	-.19%	6.43%	4.17%	3.57%	2.87%	4.53%	4.54%	2.21%	2.79%
1995-2000	2.48%	4.27%	3.15%	3.36%	4.14%	-.19%	4.86%	3.34%	3.65%	2.79%	4.43%	4.50%	2.24%	2.81%
1981-2000	2.37%	3.61%	2.74%	3.26%	3.61%	.16%	4.96%	3.29%	1.55%	2.08%	3.72%	4.67%	2.57%	2.83%

037 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

IDAHO (REGION=Northwest)

WAGE INDEXES BY 2-DIGIT SIC

YEAR	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1981	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1982	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
1983	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
1984	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
1985	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08
1986	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
1987	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13
1988	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15
1989	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17
1990	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
1991	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22
1992	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24
1993	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27
1994	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29
1995	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32
1996	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35
1997	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37
1998	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40
1999	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43
2000	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46

ANNUAL RATES OF GROWTH

1981-1985	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1985-1990	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1990-1995	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1995-2000	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1981-2000	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%

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037 -- ADDABBO - HEINZ SCENARIO                                                                    FRI, MAY 13, 1983,  3:37 PM

ILLINOIS (REGION=Midwest          )

                                                          DEMOGRAPHIC DATA
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                                                                              --RATIO OF TOTAL COMMERCIAL ACTIVITY--
                          HOUSE-   PERSONAL                           URBAN  --------------------------------------  NON-MFG/
    YEAR      PEOPLE       HOLDS     INCOME  INCOME/HH      APTS      RATIO    MINING  AGRICULT     TRANSP CONSTRUCT  TOT EARN
--------    --------    --------   --------   --------   --------   --------   -------- --------   -------- --------  --------
                                 ($000,000) ($1981/HH) --------------------------(RATIOS)---------------------------------------
    1981    11462392     4110510     132675      32277     .2052     1.0000      .0069     .0262      .1027     .0955     .6959
    1982    11505940     4179164     130685      31271     .2081     1.0000      .0067     .0255      .1022     .0949     .6973
    1983    11549670     4240955     134605      31600     .2113     1.0000      .0066     .0248      .1016     .0944     .6988
    1984    11593550     4319913     140520      32530     .2144     1.0000      .0065     .0242      .1010     .0938     .7002
    1985    11637612     4392056     146149      33276     .2175     1.0000      .0063     .0235      .1005     .0932     .7017
    1986    11689900     4449592     150972      33929     .2208     1.0000      .0062     .0229      .0999     .0927     .7031
    1987    11742504     4507881     155954      34596     .2240     1.0000      .0061     .0222      .0994     .0921     .7045
    1988    11795424     4566934     161101      35275     .2273     1.0000      .0059     .0216      .0988     .0916     .7059
    1989    11848502     4626760     166417      35968     .2307     1.0000      .0058     .0210      .0983     .0911     .7073
    1990    11901820     4687370     171909      36675     .2341     1.0000      .0057     .0205      .0977     .0905     .7087
    1991    11960130     4743149     176722      37258     .2376     1.0000      .0056     .0200      .0971     .0899     .7101
    1992    12018742     4799592     181670      37851     .2412     1.0000      .0055     .0195      .0965     .0893     .7115
    1993    12077634     4856707     186757      38453     .2447     1.0000      .0054     .0191      .0959     .0887     .7129
    1994    12136814     4914582     191986      39065     .2484     1.0000      .0053     .0186      .0953     .0881     .7143
    1995    12196284     4972984     197362      39687     .2520     1.0000      .0052     .0182      .0948     .0876     .7157
    1996    12256046     5032162     202888      40318     .2558     1.0000      .0051     .0177      .0942     .0870     .7172
    1997    12316100     5092044     208569      40960     .2596     1.0000      .0050     .0173      .0936     .0864     .7186
    1998    12376440     5152639     214409      41612     .2635     1.0000      .0050     .0169      .0930     .0858     .7200
    1999    12437092     5213955     220413      42274     .2674     1.0000      .0049     .0165      .0925     .0853     .7214
    2000    12498034     5276001     226584      42946     .2714     1.0000      .0048     .0161      .0919     .0847     .7229


ANNUAL RATES OF GROWTH
----------------------

1981-1985        .38%       1.67%      2.45%       .76%      1.47%       .00%    -2.29%    -2.60%      -.54%     -.61%      .21%
1985-1990        .45%       1.31%      3.30%      1.96%      1.48%       .00%    -1.90%    -2.69%      -.56%     -.59%      .20%
1990-1995        .49%       1.19%      2.80%      1.59%      1.48%       .00%    -1.82%    -2.35%      -.60%     -.65%      .20%
1995-2000        .49%       1.19%      2.80%      1.59%      1.49%       .00%    -1.59%    -2.42%      -.62%     -.67%      .20%

1981-2000        .46%       1.32%      2.86%      1.51%      1.48%       .00%    -1.89%    -2.53%      -.58%     -.63%      .20%
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#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

ILLINOIS (REGION=Midwest)

ENERGY PRICES

	GAS			ELECTRIC			PETROLEUM				
YEAR	RESIDENT	COMMERC	INDUSTR	RESIDENT	COMMERC	INDUSTR	RESIDENT	COMMERC	INDUSTR	COAL	LPG
	($1981/MMBTU)			($1981/KWH)	(INDEX)		($1981/GAL)	(INDEX)		(INDEX)	($1981/GAL)
1981	3.82	3.54	3.36	.0624	.0610	.0417	1.2050	100.00	100.00	100.00	.4800
1982	4.38	4.10	3.92	.0671	.0655	.0448	1.1027	91.51	91.51	103.00	.5050
1983	4.51	4.23	4.05	.0680	.0664	.0454	.9820	81.49	81.49	106.09	.5312
1984	4.45	4.17	3.99	.0721	.0704	.0482	.9538	79.15	79.15	109.27	.5588
1985	4.29	4.01	3.83	.0760	.0742	.0508	.9376	77.81	77.81	112.55	.5879
1986	4.30	4.02	3.84	.0769	.0751	.0514	.9442	78.36	78.36	115.93	.6185
1987	4.53	4.25	4.07	.0788	.0770	.0527	.9508	78.91	78.91	119.41	.6506
1988	4.94	4.66	4.48	.0780	.0762	.0521	.9575	79.46	79.46	122.99	.6845
1989	5.39	5.11	4.93	.0785	.0766	.0524	.9642	80.01	80.01	126.68	.7201
1990	5.72	5.44	5.26	.0769	.0751	.0514	.9709	80.58	80.58	130.48	.7575
1991	5.88	5.60	5.42	.0775	.0757	.0518	.9826	81.54	81.54	134.39	.7969
1992	5.87	5.59	5.41	.0795	.0776	.0531	.9944	82.52	82.52	138.42	.8383
1993	5.82	5.54	5.36	.0743	.0726	.0497	1.0063	83.51	83.51	142.58	.8819
1994	5.90	5.62	5.44	.0800	.0781	.0534	1.0184	84.51	84.51	146.85	.9278
1995	6.04	5.76	5.58	.0724	.0706	.0483	1.0306	85.53	85.53	151.26	.9760
1996	6.27	5.99	5.81	.0777	.0758	.0519	1.0512	87.24	87.24	155.80	1.0268
1997	6.50	6.22	6.04	.0727	.0710	.0486	1.0722	88.98	88.98	160.47	1.0802
1998	6.73	6.45	6.27	.0775	.0757	.0518	1.0937	90.76	90.76	165.28	1.1363
1999	7.00	6.72	6.54	.0723	.0706	.0483	1.1156	92.58	92.58	170.24	1.1954
2000	7.29	7.01	6.83	.0761	.0743	.0508	1.1379	94.43	94.43	175.35	1.2576

ANNUAL RATES OF GROWTH

1981-1985	2.94%	3.17%	3.33%	5.04%	5.04%	5.04%	-6.08%	-6.08%	-6.08%	3.00%	5.20%
1985-1990	5.92%	6.29%	6.55%	.23%	.23%	.23%	.70%	.70%	.70%	3.00%	5.20%
1990-1995	1.09%	1.15%	1.19%	-1.20%	-1.21%	-1.20%	1.20%	1.20%	1.20%	3.00%	5.20%
1995-2000	3.83%	4.01%	4.13%	1.00%	1.00%	1.00%	2.00%	2.00%	2.00%	3.00%	5.20%
1981-2000	3.46%	3.66%	3.80%	1.04%	1.04%	1.04%	-.30%	-.30%	-.30%	3.00%	5.20%

#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

ILLINOIS (REGION=Midwest)

VALUE ADDED INDEXES BY 2-DIGIT SIC

YEAR	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1981	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1982	.99	.89	.91	.93	.88	1.01	.90	.85	.65	.82	.81	.95	.95	.92
1983	1.01	.93	.94	.97	.92	1.02	.95	.89	.69	.85	.86	1.00	.98	.98
1984	1.04	.97	.97	1.01	.95	1.04	1.00	.92	.73	.89	.91	1.05	1.01	1.04
1985	1.07	1.01	1.01	1.05	.99	1.05	1.06	.96	.77	.92	.96	1.10	1.04	1.10
1986	1.10	1.06	1.05	1.10	1.05	1.05	1.13	1.01	.81	.96	1.02	1.18	1.09	1.14
1987	1.12	1.11	1.09	1.15	1.11	1.05	1.20	1.07	.84	1.00	1.08	1.26	1.14	1.17
1988	1.15	1.17	1.13	1.20	1.18	1.05	1.28	1.14	.87	1.04	1.15	1.34	1.19	1.21
1989	1.18	1.23	1.17	1.26	1.25	1.05	1.36	1.21	.91	1.08	1.22	1.43	1.24	1.25
1990	1.21	1.29	1.22	1.32	1.32	1.05	1.45	1.28	.94	1.12	1.29	1.53	1.30	1.29
1991	1.24	1.34	1.26	1.36	1.38	1.05	1.54	1.33	.98	1.15	1.35	1.60	1.33	1.33
1992	1.27	1.40	1.30	1.41	1.43	1.05	1.64	1.39	1.01	1.19	1.41	1.67	1.36	1.36
1993	1.31	1.46	1.34	1.46	1.49	1.05	1.75	1.45	1.05	1.22	1.47	1.75	1.39	1.40
1994	1.34	1.52	1.38	1.50	1.54	1.05	1.86	1.51	1.09	1.25	1.54	1.83	1.42	1.44
1995	1.38	1.59	1.43	1.56	1.60	1.04	1.98	1.57	1.12	1.29	1.61	1.91	1.45	1.48
1996	1.41	1.66	1.47	1.61	1.67	1.04	2.08	1.62	1.16	1.32	1.68	2.00	1.48	1.52
1997	1.45	1.73	1.52	1.66	1.74	1.04	2.18	1.68	1.21	1.36	1.76	2.09	1.51	1.56
1998	1.49	1.80	1.57	1.72	1.81	1.04	2.28	1.73	1.25	1.40	1.84	2.18	1.55	1.60
1999	1.53	1.88	1.62	1.78	1.88	1.04	2.39	1.79	1.29	1.44	1.92	2.28	1.58	1.65
2000	1.56	1.96	1.67	1.84	1.96	1.03	2.51	1.85	1.34	1.48	2.00	2.38	1.62	1.70

ANNUAL RATES OF GROWTH

1981-1985	1.71%	.25%	.25%	1.23%	-.25%	1.23%	1.47%	-1.02%	-6.33%	-2.06%	-1.02%	2.41%	.99%	2.41%
1985-1990	2.49%	5.02%	3.85%	4.68%	5.92%	.00%	6.47%	5.92%	4.07%	4.01%	6.09%	6.82%	4.56%	3.24%
1990-1995	2.66%	4.27%	3.23%	3.40%	3.92%	-.19%	6.43%	4.17%	3.57%	2.87%	4.53%	4.54%	2.21%	2.79%
1995-2000	2.48%	4.27%	3.15%	3.36%	4.14%	-.19%	4.86%	3.34%	3.65%	2.79%	4.43%	4.50%	2.24%	2.81%
1981-2000	2.37%	3.61%	2.74%	3.26%	3.61%	.16%	4.96%	3.29%	1.55%	2.08%	3.72%	4.67%	2.57%	2.83%

#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

ILLINOIS (REGION=Midwest)

WAGE INDEXES BY 2-DIGIT SIC

YEAR	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1981	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1982	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
1983	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
1984	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
1985	1.09	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08
1986	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
1987	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13
1988	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15
1989	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17
1990	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
1991	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22
1992	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24
1993	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27
1994	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29
1995	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32
1996	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35
1997	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37
1998	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40
1999	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43
2000	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46

ANNUAL RATES OF GROWTH

1981-1985	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1985-1990	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1990-1995	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1995-2000	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1981-2000	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%

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#37 -- ADDABBO - HEINZ SCENARIO                                                              FRI, MAY 13, 1983,  3:37 PM

INDIANA  (REGION=Midwest           )

                                                DEMOGRAPHIC DATA
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                                                                          --RATIO OF TOTAL COMMERCIAL ACTIVITY--
                        HOUSE-   PERSONAL                          URBAN  --------------------------------------  NON-MFG/
    YEAR     PEOPLE      HOLDS     INCOME INCOME/HH       APTS     RATIO    MINING  AGRICULT    TRANSP CONSTRUCT  TOT EARN
--------   --------   --------   -------- --------   --------   --------  --------  --------  --------  --------  --------
                               ($000,000) ($1981/HH) -------------------------(RATIOS)---------------------------------
    1981    5534379    1967081      53147    27018      .1067     1.0000     .0057     .0438     .1002     .1029     .6016
    1982    5578101    2007997      52350    26071      .1083     1.0000     .0055     .0425     .0998     .1026     .6035
    1983    5622168    2049764      53920    26306      .1100     1.0000     .0054     .0412     .0994     .1023     .6054
    1984    5666583    2092399      56293    26903      .1116     1.0000     .0053     .0400     .0989     .1020     .6073
    1985    5711349    2135922      58544    27409      .1132     1.0000     .0051     .0389     .0985     .1016     .6091
    1986    5756469    2171164      60476    27854      .1148     1.0000     .0050     .0377     .0981     .1013     .6110
    1987    5801945    2206988      62472    28307      .1166     1.0000     .0049     .0366     .0977     .1010     .6128
    1988    5847780    2243403      64534    28766      .1182     1.0000     .0048     .0355     .0973     .1007     .6147
    1989    5893977    2280420      66663    29233      .1200     1.0000     .0047     .0345     .0968     .1004     .6165
    1990    5940539    2318046      68863    29707      .1217     1.0000     .0046     .0335     .0964     .1001     .6183
    1991    5976182    2348181      70791    30147      .1235     1.0000     .0045     .0325     .0960     .0998     .6201
    1992    6012039    2378707      72774    30594      .1253     1.0000     .0044     .0316     .0956     .0995     .6219
    1993    6048111    2409631      74811    31047      .1271     1.0000     .0043     .0307     .0952     .0992     .6237
    1994    6084400    2440956      76906    31507      .1290     1.0000     .0042     .0298     .0948     .0989     .6256
    1995    6120907    2472688      79059    31973      .1308     1.0000     .0041     .0289     .0944     .0986     .6274
    1996    6157633    2504833      81273    32446      .1327     1.0000     .0040     .0281     .0940     .0983     .6292
    1997    6194579    2537396      83549    32927      .1347     1.0000     .0040     .0273     .0936     .0980     .6310
    1998    6231747    2570383      85888    33415      .1367     1.0000     .0039     .0265     .0933     .0977     .6329
    1999    6269138    2603798      88293    33909      .1387     1.0000     .0038     .0257     .0929     .0974     .6347
    2000    6306753    2637647      90765    34411      .1407     1.0000     .0037     .0250     .0925     .0971     .6366


ANNUAL RATES OF GROWTH
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1981-1985       .79%      2.08%      2.45%      .36%      1.49%       .00%    -2.74%    -2.92%     -.43%     -.32%      .31%
1985-1990       .79%      1.65%      3.30%     1.62%      1.46%       .00%    -2.04%    -2.94%     -.43%     -.30%      .30%
1990-1995       .60%      1.30%      2.80%     1.48%      1.45%       .00%    -2.20%    -2.91%     -.42%     -.30%      .29%
1995-2000       .60%      1.30%      2.80%     1.48%      1.47%       .00%    -2.03%    -2.86%     -.41%     -.31%      .29%

1981-2000       .69%      1.56%      2.86%     1.28%      1.47%       .00%    -2.25%    -2.91%     -.42%     -.30%      .30%
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#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

INDIANA (REGION=Midwest)

ENERGY PRICES

YEAR	GAS RESIDENT	GAS COMMERC	GAS INDUSTR	ELECTRIC RESIDENT	ELECTRIC COMMERC	ELECTRIC INDUSTR	PETROLEUM RESIDENT	PETROLEUM COMMERC	PETROLEUM INDUSTR	COAL	LPG
	($1981/MMBTU)	($1981/MMBTU)	($1981/MMBTU)	($1981/KWH)	(INDEX)	(INDEX)	($1981/GAL)	(INDEX)	(INDEX)	(INDEX)	($1981/GAL)
1981	3.56	3.34	3.00	.0624	.0610	.0417	1.2050	100.00	100.00	100.00	.4000
1982	4.12	3.90	3.56	.0671	.0655	.0440	1.1027	91.51	91.51	103.00	.5050
1983	4.25	4.03	3.69	.0680	.0664	.0454	.9820	81.49	81.49	106.09	.5312
1984	4.19	3.97	3.63	.0721	.0704	.0482	.9530	79.15	79.15	109.27	.5580
1985	4.03	3.81	3.47	.0760	.0742	.0508	.9376	77.81	77.81	112.55	.5879
1986	4.04	3.82	3.48	.0769	.0751	.0514	.9442	78.36	78.36	115.93	.6185
1987	4.27	4.05	3.71	.0788	.0770	.0527	.9508	78.91	78.91	119.41	.6506
1988	4.68	4.46	4.12	.0780	.0762	.0521	.9575	79.46	79.46	122.99	.6845
1989	5.13	4.91	4.57	.0785	.0766	.0524	.9642	80.01	80.01	126.68	.7201
1990	5.46	5.24	4.90	.0769	.0751	.0514	.9709	80.58	80.58	130.48	.7575
1991	5.62	5.40	5.06	.0775	.0757	.0518	.9826	81.54	81.54	134.39	.7969
1992	5.61	5.39	5.05	.0795	.0776	.0531	.9944	82.52	82.52	138.42	.8383
1993	5.56	5.34	5.00	.0743	.0726	.0497	1.0063	83.51	83.51	142.58	.8819
1994	5.64	5.42	5.08	.0800	.0781	.0534	1.0184	84.51	84.51	146.85	.9270
1995	5.78	5.56	5.22	.0724	.0706	.0483	1.0306	85.53	85.53	151.26	.9760
1996	6.01	5.79	5.45	.0777	.0758	.0519	1.0512	87.24	87.24	155.80	1.0268
1997	6.24	6.02	5.68	.0727	.0710	.0486	1.0722	88.98	88.98	160.47	1.0802
1998	6.47	6.25	5.91	.0775	.0757	.0518	1.0937	90.76	90.76	165.28	1.1363
1999	6.74	6.52	6.18	.0723	.0706	.0483	1.1156	92.58	92.58	170.24	1.1954
2000	7.03	6.81	6.47	.0761	.0743	.0508	1.1379	94.43	94.43	175.35	1.2576

ANNUAL RATES OF GROWTH

1981-1985	3.15%	3.35%	3.71%	5.04%	5.04%	5.04%	-6.08%	-6.08%	-6.08%	3.00%	5.20%
1985-1990	6.26%	6.58%	7.15%	.23%	.23%	.23%	.70%	.70%	.70%	3.00%	5.20%
1990-1995	1.15%	1.19%	1.27%	-1.20%	-1.21%	-1.20%	1.20%	1.20%	1.20%	3.00%	5.20%
1995-2000	3.99%	4.14%	4.39%	1.00%	1.00%	1.00%	2.00%	2.00%	2.00%	3.00%	5.20%
1981-2000	3.65%	3.82%	4.13%	1.04%	1.04%	1.04%	-.30%	-.30%	-.30%	3.00%	5.20%

#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

INDIANA (REGION=Midwest)

VALUE ADDED INDEXES BY 2-DIGIT SIC

YEAR	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1981	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1982	.99	.89	.91	.93	.88	1.01	.90	.85	.65	.82	.81	.95	.95	.92
1983	1.01	.93	.94	.97	.92	1.02	.95	.88	.69	.85	.86	1.00	.98	.98
1984	1.04	.97	.97	1.01	.95	1.04	1.00	.92	.73	.89	.91	1.05	1.01	1.04
1985	1.07	1.01	1.01	1.05	.99	1.05	1.06	.96	.77	.92	.96	1.10	1.04	1.10
1986	1.10	1.06	1.05	1.10	1.05	1.05	1.13	1.01	.81	.96	1.02	1.18	1.09	1.14
1987	1.12	1.11	1.09	1.15	1.11	1.05	1.20	1.07	.84	1.00	1.08	1.26	1.14	1.17
1988	1.15	1.17	1.13	1.20	1.18	1.05	1.28	1.14	.87	1.04	1.15	1.34	1.19	1.21
1989	1.18	1.23	1.17	1.26	1.25	1.05	1.36	1.21	.91	1.08	1.22	1.43	1.24	1.25
1990	1.21	1.29	1.22	1.32	1.32	1.05	1.45	1.28	.94	1.12	1.29	1.53	1.30	1.29
1991	1.24	1.34	1.26	1.36	1.38	1.05	1.54	1.33	.98	1.15	1.35	1.60	1.33	1.33
1992	1.27	1.40	1.30	1.41	1.43	1.05	1.64	1.39	1.01	1.19	1.41	1.67	1.36	1.36
1993	1.31	1.46	1.34	1.46	1.49	1.05	1.75	1.45	1.05	1.22	1.47	1.75	1.39	1.40
1994	1.34	1.52	1.38	1.50	1.54	1.05	1.86	1.51	1.09	1.25	1.54	1.83	1.42	1.44
1995	1.38	1.59	1.43	1.56	1.60	1.04	1.98	1.57	1.12	1.29	1.61	1.91	1.45	1.48
1996	1.41	1.66	1.47	1.61	1.67	1.04	2.08	1.62	1.16	1.32	1.68	2.00	1.48	1.52
1997	1.45	1.73	1.52	1.66	1.74	1.04	2.18	1.68	1.21	1.36	1.76	2.09	1.51	1.56
1998	1.49	1.80	1.57	1.72	1.81	1.04	2.28	1.73	1.25	1.40	1.84	2.18	1.55	1.60
1999	1.53	1.88	1.62	1.78	1.88	1.04	2.39	1.79	1.29	1.44	1.92	2.28	1.58	1.65
2000	1.56	1.96	1.67	1.84	1.96	1.03	2.51	1.85	1.34	1.48	2.00	2.38	1.62	1.70

ANNUAL RATES OF GROWTH

1981-1985	1.71%	.25%	.25%	1.23%	-.25%	1.23%	1.47%	-1.02%	-6.33%	-2.06%	-1.02%	2.41%	.99%	2.41%
1985-1990	2.49%	5.02%	3.85%	4.68%	5.92%	.00%	6.47%	5.92%	4.07%	4.01%	6.09%	6.82%	4.56%	3.24%
1990-1995	2.66%	4.27%	3.23%	3.40%	3.92%	-.19%	6.43%	4.17%	3.57%	2.87%	4.53%	4.54%	2.21%	2.79%
1995-2000	2.48%	4.27%	3.15%	3.36%	4.14%	-.19%	4.86%	3.34%	3.65%	2.79%	4.43%	4.50%	2.24%	2.81%
1981-2000	2.37%	3.61%	2.74%	3.26%	3.61%	.16%	4.96%	3.29%	1.55%	2.08%	3.72%	4.67%	2.57%	2.83%

#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

INDIANA (REGION=Midwest)

WAGE INDEXES BY 2-DIGIT SIC

YEAR	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1981	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1982	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
1983	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
1984	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
1985	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08
1986	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
1987	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13
1988	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15
1989	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17
1990	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
1991	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22
1992	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24
1993	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27
1994	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29
1995	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32
1996	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35
1997	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37
1998	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40
1999	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43
2000	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46

ANNUAL RATES OF GROWTH

1981-1985	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1985-1990	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1990-1995	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1995-2000	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1981-2000	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%

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#37 -- ADDABBO - HEINZ SCENARIO                                                     FRI, MAY 13, 1983,  3:37 PM

IOWA     (REGION=Central              )

                                             DEMOGRAPHIC DATA
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                                                                           --RATIO OF TOTAL COMMERCIAL ACTIVITY--
                          HOUSE-  PERSONAL                        URBAN   --------------------------------------  NON-MFG/
    YEAR     PEOPLE        HOLDS    INCOME INCOME/HH       APTS    RATIO    MINING  AGRICULT      TRANSP CONSTRUCT  TOT EARN
--------   --------     --------  -------- ---------   --------  -------- --------  --------    --------  --------  --------
                                ($000,000) ($1981/HH) ---------------------------(RATIOS)-------------------------------
    1981    2937604      1069848     30362     28380      .1060    1.0000     .0040     .1558       .0838     .0780     .7536
    1982    2961398      1086965     29907     27514      .1075    1.0000     .0040     .1529       .0837     .0779     .7536
    1983    2985385      1104357     30804     27893      .1091    1.0000     .0039     .1500       .0837     .0778     .7536
    1984    3009567      1122027     32159     28662      .1107    1.0000     .0039     .1472       .0836     .0777     .7535
    1985    3033945      1139979     33445     29339      .1123    1.0000     .0038     .1444       .0835     .0776     .7535
    1986    3055486      1157877     34549     29838      .1141    1.0000     .0038     .1417       .0835     .0774     .7535
    1987    3077181      1176056     35689     30347      .1157    1.0000     .0037     .1390       .0834     .0773     .7534
    1988    3099028      1194521     36867     30863      .1174    1.0000     .0037     .1364       .0833     .0772     .7534
    1989    3121032      1213274     38084     31389      .1192    1.0000     .0036     .1338       .0832     .0771     .7534
    1990    3143191      1232322     39340     31924      .1209    1.0000     .0036     .1313       .0832     .0770     .7533
    1991    3160794      1247850     40442     32409      .1227    1.0000     .0036     .1288       .0832     .0769     .7532
    1992    3178494      1263573     41574     32902      .1246    1.0000     .0036     .1264       .0832     .0768     .7531
    1993    3196294      1279494     42738     33403      .1264    1.0000     .0036     .1241       .0832     .0767     .7530
    1994    3214193      1295616     43935     33911      .1283    1.0000     .0036     .1219       .0832     .0766     .7529
    1995    3232193      1311941     45165     34426      .1302    1.0000     .0036     .1195       .0832     .0765     .7528
    1996    3250293      1328471     46430     34950      .1321    1.0000     .0036     .1173       .0832     .0764     .7527
    1997    3268494      1345210     47730     35481      .1340    1.0000     .0036     .1151       .0832     .0763     .7526
    1998    3286798      1362159     49066     36021      .1360    1.0000     .0036     .1129       .0832     .0762     .7525
    1999    3305205      1379323     50440     36569      .1379    1.0000     .0036     .1108       .0832     .0761     .7524
    2000    3323714      1396701     51853     37125      .1400    1.0000     .0036     .1087       .0832     .0760     .7523


ANNUAL RATES OF GROWTH
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1981-1985         .81%      1.60%      2.45%       .83%      1.45%       .00%    -1.27%    -1.88%       -.09%     -.13%     -.00%
1985-1990         .71%      1.57%      3.30%      1.70%      1.49%       .00%    -1.08%    -1.88%       -.07%     -.16%     -.01%
1990-1995         .56%      1.26%      2.80%      1.52%      1.49%       .00%      .00%    -1.87%        .00%     -.13%     -.01%
1995-2000         .56%      1.26%      2.80%      1.52%      1.46%       .00%      .00%    -1.88%        .00%     -.13%     -.01%

1981-2000         .65%      1.41%      2.86%      1.42%      1.48%       .00%     -.55%    -1.88%       -.04%     -.14%     -.01%
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#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

IOWA (REGION=Central)

ENERGY PRICES

	GAS			ELECTRIC			PETROLEUM				
YEAR	RESIDENT	COMMERC	INDUSTR	RESIDENT	COMMERC	INDUSTR	RESIDENT	COMMERC	INDUSTR	COAL	LPG
	($1981/MMBTU)			($1981/KWH)	(INDEX)		($1981/GAL)	(INDEX)		(INDEX)	($1981/GAL)
1981	3.09	3.50	3.08	.0611	.0575	.0418	1.2050	100.00	100.00	100.00	.4800
1982	4.45	4.06	3.64	.0686	.0644	.0468	1.1027	91.51	91.51	103.00	.5050
1983	4.58	4.19	3.77	.0679	.0638	.0464	.9820	81.49	81.49	106.09	.5312
1984	4.52	4.13	3.71	.0691	.0650	.0472	.9538	79.15	79.15	109.27	.5588
1985	4.36	3.97	3.55	.0829	.0779	.0566	.9376	77.81	77.81	112.55	.5879
1986	4.37	3.98	3.56	.0805	.0757	.0550	.9442	78.36	78.36	115.93	.6185
1987	4.60	4.21	3.79	.0787	.0740	.0537	.9508	78.91	78.91	119.41	.6506
1988	5.01	4.62	4.20	.0770	.0724	.0526	.9575	79.46	79.46	122.99	.6845
1989	5.46	5.07	4.65	.0765	.0719	.0523	.9642	80.01	80.01	126.68	.7201
1990	5.79	5.40	4.98	.0755	.0710	.0516	.9709	80.58	80.58	130.48	.7575
1991	5.95	5.56	5.14	.0784	.0737	.0536	.9826	81.54	81.54	134.39	.7969
1992	5.94	5.55	5.13	.0778	.0731	.0531	.9944	82.52	82.52	138.42	.8383
1993	5.89	5.50	5.08	.0766	.0721	.0523	1.0063	83.51	83.51	142.58	.8819
1994	5.97	5.58	5.16	.0755	.0710	.0516	1.0184	84.51	84.51	146.85	.9278
1995	6.11	5.72	5.30	.0723	.0680	.0494	1.0306	85.53	85.53	151.26	.9760
1996	6.34	5.95	5.53	.0713	.0670	.0487	1.0512	87.24	87.24	155.80	1.0268
1997	6.57	6.18	5.76	.0702	.0660	.0480	1.0722	88.98	88.98	160.47	1.0802
1998	6.80	6.41	5.99	.0692	.0651	.0473	1.0937	90.76	90.76	165.28	1.1363
1999	7.07	6.68	6.26	.0678	.0638	.0463	1.1156	92.58	92.58	170.24	1.1954
2000	7.36	6.97	6.55	.0664	.0624	.0454	1.1379	94.43	94.43	175.35	1.2576

ANNUAL RATES OF GROWTH

1981-1985	2.89%	3.20%	3.61%	7.91%	7.90%	7.91%	-6.08%	-6.08%	-6.08%	3.00%	5.20%
1985-1990	5.84%	6.35%	7.00%	-1.85%	-1.85%	-1.85%	.70%	.70%	.70%	3.00%	5.20%
1990-1995	1.08%	1.16%	1.25%	-.86%	-.87%	-.86%	1.20%	1.20%	1.20%	3.00%	5.20%
1995-2000	3.79%	4.03%	4.33%	-1.68%	-1.68%	-1.68%	2.00%	2.00%	2.00%	3.00%	5.20%
1981-2000	3.41%	3.69%	4.05%	.44%	.44%	.44%	-.30%	-.30%	-.30%	3.00%	5.20%

IOWA (REGION=Central)

VALUE ADDED INDEXES BY 2-DIGIT SIC

YEAR	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1981	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1982	.99	.89	.91	.93	.88	1.01	.90	.85	.65	.82	.81	.95	.95	.92
1983	1.01	.93	.94	.97	.92	1.02	.95	.88	.69	.85	.86	1.00	.98	.98
1984	1.04	.97	.97	1.01	.95	1.04	1.00	.92	.73	.89	.91	1.05	1.01	1.04
1985	1.07	1.01	1.01	1.05	.99	1.05	1.06	.96	.77	.92	.96	1.10	1.04	1.10
1986	1.10	1.06	1.05	1.10	1.05	1.05	1.13	1.01	.81	.96	1.02	1.18	1.09	1.14
1987	1.12	1.11	1.09	1.15	1.11	1.05	1.20	1.07	.84	1.00	1.08	1.26	1.14	1.17
1988	1.15	1.17	1.13	1.20	1.18	1.05	1.28	1.14	.87	1.04	1.15	1.34	1.19	1.21
1989	1.18	1.23	1.17	1.26	1.25	1.05	1.36	1.21	.91	1.08	1.22	1.43	1.24	1.25
1990	1.21	1.29	1.22	1.32	1.32	1.05	1.45	1.28	.94	1.12	1.29	1.53	1.30	1.29
1991	1.24	1.34	1.26	1.36	1.38	1.05	1.54	1.33	.98	1.15	1.35	1.60	1.33	1.33
1992	1.27	1.40	1.30	1.41	1.43	1.05	1.64	1.39	1.01	1.19	1.41	1.67	1.36	1.36
1993	1.31	1.46	1.34	1.46	1.49	1.05	1.75	1.45	1.05	1.22	1.47	1.75	1.39	1.40
1994	1.34	1.52	1.38	1.50	1.54	1.05	1.86	1.51	1.09	1.25	1.54	1.83	1.42	1.44
1995	1.38	1.59	1.43	1.56	1.60	1.04	1.98	1.57	1.12	1.29	1.61	1.91	1.45	1.48
1996	1.41	1.66	1.47	1.61	1.67	1.04	2.08	1.62	1.16	1.32	1.68	2.00	1.48	1.52
1997	1.45	1.73	1.52	1.66	1.74	1.04	2.18	1.68	1.21	1.36	1.76	2.09	1.51	1.56
1998	1.49	1.80	1.57	1.72	1.81	1.04	2.28	1.73	1.25	1.40	1.84	2.18	1.55	1.60
1999	1.53	1.88	1.62	1.78	1.88	1.04	2.39	1.79	1.29	1.44	1.92	2.28	1.58	1.65
2000	1.56	1.96	1.67	1.84	1.96	1.03	2.51	1.85	1.34	1.48	2.00	2.38	1.62	1.70

ANNUAL RATES OF GROWTH

1981-1985	1.71%	.25%	.25%	1.23%	-.25%	1.23%	1.47%	-1.02%	-6.33%	-2.06%	-1.02%	2.41%	.99%	2.41%
1985-1990	2.49%	5.02%	3.85%	4.68%	5.92%	.00%	6.47%	5.92%	4.07%	4.01%	6.09%	6.82%	4.56%	3.24%
1990-1995	2.66%	4.27%	3.23%	3.40%	3.92%	-.19%	6.43%	4.17%	3.57%	2.87%	4.53%	4.54%	2.21%	2.79%
1995-2000	2.48%	4.27%	3.15%	3.36%	4.14%	-.19%	4.86%	3.34%	3.65%	2.79%	4.43%	4.50%	2.24%	2.01%
1981-2000	2.37%	3.61%	2.74%	3.26%	3.61%	.16%	4.96%	3.29%	1.55%	2.08%	3.72%	4.67%	2.57%	2.03%

#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

IOWA (REGION=Central)

WAGE INDEXES BY 2-DIGIT SIC

YEAR	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1981	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1982	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
1983	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
1984	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
1985	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08
1986	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
1987	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13
1988	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15
1989	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17
1990	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
1991	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22
1992	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24
1993	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27
1994	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29
1995	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32
1996	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35
1997	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37
1998	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40
1999	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43
2000	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46

ANNUAL RATES OF GROWTH

	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1981-1985	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1985-1990	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1990-1995	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1995-2000	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1981-2000	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%

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#37 -- ADDABBO - HEINZ SCENARIO                                                            FRI, MAY 13, 1983,  3:37 PM

KANSAS   (REGION=Central              )

                                                       DEMOGRAPHIC DATA
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                                                                                --RATIO OF TOTAL COMMERCIAL ACTIVITY--
                            HOUSE-   PERSONAL                           URBAN   --------------------------------------  NON-MFG/
    YEAR      PEOPLE       HOLDS      INCOME  INCOME/HH        APTS     RATIO     MINING  AGRICULT     TRANSP CONSTRUCT  TOT EARN
--------    --------    --------    --------   --------    --------  --------   --------  --------   --------  --------  --------
                                  ($000,000) ($1981/HH) ---------------------------(RATIOS)---------------------------------------
    1981     2379770      889440       25762      28964       .0726    1.0000      .0110     .1122      .0941     .0740     .0027
    1982     2396674      907228       25376      27970       .0736    1.0000      .0106     .1099      .0935     .0739     .0028
    1983     2413691      925374       26137      28245       .0748    1.0000      .0103     .1076      .0930     .0739     .0029
    1984     2430820      943881       27287      28909       .0759    1.0000      .0099     .1053      .0924     .0738     .0029
    1985     2448087      962758       28378      29476       .0770    1.0000      .0095     .1031      .0919     .0737     .0030
    1986     2466693      978356       29315      29963       .0781    1.0000      .0092     .1009      .0913     .0736     .0031
    1987     2485439      994204       30282      30459       .0793    1.0000      .0089     .0988      .0908     .0735     .0031
    1988     2504329     1010311       31282      30962       .0805    1.0000      .0085     .0967      .0902     .0734     .0032
    1989     2523362     1026678       32314      31474       .0816    1.0000      .0082     .0947      .0897     .0734     .0033
    1990     2542539     1043310       33380      31994       .0829    1.0000      .0079     .0927      .0892     .0733     .0033
    1991     2557539     1056769       34315      32471       .0842    1.0000      .0076     .0907      .0887     .0732     .0033
    1992     2572628     1070402       35276      32955       .0855    1.0000      .0073     .0888      .0882     .0731     .0033
    1993     2587807     1084210       36263      33447       .0868    1.0000      .0071     .0869      .0877     .0730     .0033
    1994     2603075     1098196       37279      33945       .0882    1.0000      .0068     .0851      .0872     .0729     .0033
    1995     2618433     1112363       38323      34451       .0895    1.0000      .0066     .0833      .0867     .0728     .0033
    1996     2633881     1126712       39396      34965       .0909    1.0000      .0063     .0816      .0863     .0727     .0033
    1997     2649422     1141247       40499      35486       .0924    1.0000      .0061     .0798      .0858     .0726     .0033
    1998     2665052     1155969       41633      36015       .0938    1.0000      .0059     .0781      .0853     .0725     .0033
    1999     2680776     1170881       42798      36552       .0952    1.0000      .0056     .0765      .0848     .0724     .0033
    2000     2696591     1185986       43997      37097       .0968    1.0000      .0054     .0749      .0844     .0723     .0033


ANNUAL RATES OF GROWTH
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1981-1985        .71%      2.00%      2.45%       .44%      1.48%       .00%    -3.60%    -2.09%      -.59%     -.10%       .01%
1985-1990        .76%      1.62%      3.30%      1.65%      1.49%       .00%    -3.62%    -2.10%      -.59%     -.11%       .01%
1990-1995        .59%      1.29%      2.80%      1.49%      1.54%       .00%    -3.53%    -2.12%      -.57%     -.14%       .00%
1995-2000        .59%      1.29%      2.80%      1.49%      1.58%       .00%    -3.93%    -2.10%      -.54%     -.14%       .00%

1981-2000        .66%      1.53%      2.86%      1.31%      1.53%       .00%    -3.68%    -2.10%      -.57%     -.12%       .00%
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#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

KANSAS (REGION=Central)

ENERGY PRICES

	GAS			ELECTRIC			PETROLEUM				
YEAR	RESIDENT	COMMERC	INDUSTR	RESIDENT	COMMERC	INDUSTR	RESIDENT	COMMERC	INDUSTR	COAL	LPG
	($1981/MMBTU)			($1981/KWH)	(INDEX)		($1981/GAL)	(INDEX)		(INDEX)	($1981/GAL)
1981	2.94	2.53	2.83	.0611	.0573	.0410	1.2050	100.00	100.00	100.00	.4800
1982	3.50	3.09	3.39	.0686	.0644	.0460	1.1027	91.51	91.51	103.00	.5050
1983	3.63	3.22	3.52	.0679	.0638	.0464	.9820	81.49	81.49	106.09	.5312
1984	3.57	3.16	3.46	.0691	.0650	.0472	.9538	79.15	79.15	109.27	.5588
1985	3.41	3.00	3.30	.0829	.0779	.0566	.9376	77.81	77.81	112.55	.5879
1986	3.42	3.01	3.31	.0805	.0757	.0550	.9442	78.36	78.36	115.93	.6185
1987	3.65	3.24	3.54	.0787	.0740	.0537	.9508	78.91	78.91	119.41	.6506
1988	4.06	3.65	3.95	.0770	.0724	.0526	.9575	79.46	79.46	122.99	.6845
1989	4.51	4.10	4.40	.0765	.0719	.0523	.9642	80.01	80.01	126.68	.7201
1990	4.84	4.43	4.73	.0755	.0710	.0516	.9709	80.58	80.58	130.48	.7575
1991	5.00	4.59	4.89	.0784	.0737	.0536	.9826	81.54	81.54	134.39	.7969
1992	4.99	4.58	4.88	.0778	.0731	.0531	.9944	82.52	82.52	138.42	.8383
1993	4.94	4.53	4.83	.0766	.0721	.0523	1.0063	83.51	83.51	142.58	.8819
1994	5.02	4.61	4.91	.0755	.0710	.0516	1.0184	84.51	84.51	146.85	.9278
1995	5.16	4.75	5.05	.0723	.0680	.0494	1.0306	85.53	85.53	151.26	.9760
1996	5.39	4.98	5.28	.0713	.0670	.0487	1.0512	87.24	87.24	155.80	1.0268
1997	5.62	5.21	5.51	.0702	.0660	.0480	1.0722	88.98	88.98	160.47	1.0802
1998	5.85	5.44	5.74	.0692	.0651	.0473	1.0937	90.76	90.76	165.28	1.1363
1999	6.12	5.71	6.01	.0678	.0638	.0463	1.1156	92.58	92.58	170.24	1.1954
2000	6.41	6.00	6.30	.0664	.0624	.0454	1.1379	94.43	94.43	175.35	1.2576

ANNUAL RATES OF GROWTH

1981-1985	3.78%	4.35%	3.92%	7.91%	7.90%	7.91%	-6.08%	-6.08%	-6.08%	3.00%	5.20%
1985-1990	7.26%	8.11%	7.47%	-1.85%	-1.85%	-1.85%	.70%	.70%	.70%	3.00%	5.20%
1990-1995	1.29%	1.40%	1.32%	-.86%	-.87%	-.86%	1.20%	1.20%	1.20%	3.00%	5.20%
1995-2000	4.43%	4.78%	4.52%	-1.68%	-1.68%	-1.68%	2.00%	2.00%	2.00%	3.00%	5.20%
1981-2000	4.19%	4.65%	4.30%	.44%	.44%	.44%	-.30%	-.30%	-.30%	3.00%	5.20%

#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

KANSAS (REGION=Central)

VALUE ADDED INDEXES BY 2-DIGIT SIC

YEAR	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1981	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1982	.99	.89	.91	.93	.88	1.01	.90	.85	.65	.82	.81	.95	.95	.92
1983	1.01	.93	.94	.97	.92	1.02	.95	.88	.69	.85	.86	1.00	.98	.98
1984	1.04	.97	.97	1.01	.95	1.04	1.00	.92	.73	.89	.91	1.05	1.01	1.04
1985	1.07	1.01	1.01	1.05	.99	1.05	1.06	.96	.77	.92	.96	1.10	1.04	1.10
1986	1.10	1.06	1.05	1.10	1.05	1.05	1.13	1.01	.81	.96	1.02	1.18	1.09	1.14
1987	1.12	1.11	1.09	1.15	1.11	1.05	1.20	1.07	.84	1.00	1.08	1.26	1.14	1.17
1988	1.15	1.17	1.13	1.20	1.18	1.05	1.28	1.14	.87	1.04	1.15	1.34	1.19	1.21
1989	1.18	1.23	1.17	1.26	1.25	1.05	1.36	1.21	.91	1.08	1.22	1.43	1.24	1.25
1990	1.21	1.29	1.22	1.32	1.32	1.05	1.45	1.28	.94	1.12	1.29	1.53	1.30	1.29
1991	1.24	1.34	1.26	1.36	1.38	1.05	1.54	1.33	.98	1.15	1.35	1.60	1.33	1.33
1992	1.27	1.40	1.30	1.41	1.43	1.05	1.64	1.39	1.01	1.19	1.41	1.67	1.36	1.36
1993	1.31	1.46	1.34	1.46	1.49	1.05	1.75	1.45	1.05	1.22	1.47	1.75	1.39	1.40
1994	1.34	1.52	1.38	1.50	1.54	1.05	1.86	1.51	1.09	1.25	1.54	1.83	1.42	1.44
1995	1.38	1.59	1.43	1.56	1.60	1.04	1.98	1.57	1.12	1.29	1.61	1.91	1.45	1.48
1996	1.41	1.66	1.47	1.61	1.67	1.04	2.08	1.62	1.16	1.32	1.68	2.00	1.48	1.52
1997	1.45	1.73	1.52	1.66	1.74	1.04	2.18	1.68	1.21	1.36	1.76	2.09	1.51	1.56
1998	1.49	1.80	1.57	1.72	1.81	1.04	2.28	1.73	1.25	1.40	1.84	2.18	1.55	1.60
1999	1.53	1.88	1.62	1.78	1.88	1.04	2.39	1.79	1.29	1.44	1.92	2.28	1.58	1.65
2000	1.56	1.96	1.67	1.84	1.96	1.03	2.51	1.85	1.34	1.48	2.00	2.38	1.62	1.70

ANNUAL RATES OF GROWTH

1981-1985	1.71%	.25%	.25%	1.23%	-.25%	1.23%	1.47%	-1.02%	-6.33%	-2.06%	-1.02%	2.41%	.99%	2.41%
1985-1990	2.49%	5.02%	3.85%	4.68%	5.92%	.00%	6.47%	5.92%	4.07%	4.01%	6.09%	6.82%	4.56%	3.24%
1990-1995	2.66%	4.27%	3.23%	3.40%	3.92%	-.19%	6.43%	4.17%	3.57%	2.87%	4.53%	4.54%	2.21%	2.79%
1995-2000	2.48%	4.27%	3.15%	3.36%	4.14%	-.19%	4.86%	3.34%	3.65%	2.79%	4.43%	4.50%	2.24%	2.81%
1981-2000	2.37%	3.61%	2.74%	3.26%	3.61%	.16%	4.96%	3.29%	1.55%	2.08%	3.72%	4.67%	2.57%	2.83%

#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

KANSAS (REGION=Central)

WAGE INDEXES BY 2-DIGIT SIC

YEAR	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1981	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1982	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
1983	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
1984	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
1985	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08
1986	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
1987	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13
1988	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15
1989	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17
1990	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
1991	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22
1992	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24
1993	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27
1994	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29
1995	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32
1996	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35
1997	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37
1998	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40
1999	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43
2000	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46

ANNUAL RATES OF GROWTH

1981-1985	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1985-1990	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1990-1995	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1995-2000	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1981-2000	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%

KENTUCKY (REGION=South Atlantic)

DEMOGRAPHIC DATA

							--RATIO OF TOTAL COMMERCIAL ACTIVITY--				
YEAR	PEOPLE	HOUSE-HOLDS	PERSONAL INCOME	INCOME/HH	APTS	URBAN RATIO	MINING	AGRICULT	TRANSP	CONSTRUCT	NON-MFG/ TOT EARN
			($000,000)	($1981/HH)	(RATIOS)						
1981	3703469	1295094	30836	23810	.1000	1.0000	.0426	.0644	.0897	.0938	.7218
1982	3746428	1326954	30373	22890	.1015	1.0000	.0419	.0626	.0893	.0937	.7216
1983	3789887	1359597	31285	23010	.1030	1.0000	.0412	.0608	.0889	.0935	.7215
1984	3833850	1393043	32661	23446	.1045	1.0000	.0405	.0591	.0885	.0933	.7213
1985	3878322	1427312	33968	23798	.1061	1.0000	.0399	.0575	.0881	.0931	.7211
1986	3916718	1453718	35089	24137	.1077	1.0000	.0392	.0559	.0877	.0930	.7209
1987	3955494	1480612	36246	24481	.1092	1.0000	.0386	.0543	.0873	.0928	.7207
1988	3994654	1508003	37443	24829	.1108	1.0000	.0379	.0528	.0869	.0926	.7205
1989	4034201	1535902	38678	25183	.1124	1.0000	.0373	.0513	.0865	.0924	.7203
1990	4074140	1564316	39955	25541	.1142	1.0000	.0367	.0498	.0861	.0923	.7201
1991	4109993	1589032	41073	25848	.1159	1.0000	.0361	.0483	.0857	.0922	.7199
1992	4146161	1614139	42223	26158	.1178	1.0000	.0355	.0469	.0853	.0921	.7197
1993	4182647	1639643	43406	26473	.1196	1.0000	.0350	.0456	.0849	.0920	.7195
1994	4219454	1665549	44621	26791	.1215	1.0000	.0344	.0442	.0845	.0919	.7193
1995	4256585	1691065	45870	27112	.1234	1.0000	.0338	.0429	.0841	.0918	.7191
1996	4294043	1718596	47155	27438	.1253	1.0000	.0333	.0417	.0837	.0917	.7189
1997	4331830	1745750	48475	27768	.1272	1.0000	.0328	.0405	.0834	.0916	.7187
1998	4369950	1773333	49832	28101	.1291	1.0000	.0322	.0393	.0830	.0915	.7185
1999	4408406	1801352	51228	28439	.1311	1.0000	.0317	.0381	.0826	.0914	.7183
2000	4447200	1829812	52662	28780	.1332	1.0000	.0312	.0370	.0822	.0913	.7181

ANNUAL RATES OF GROWTH

1981-1985	1.16%	2.46%	2.45%	-.01%	1.49%	.00%	-1.62%	-2.79%	-.45%	-.19%	-.02%
1985-1990	.99%	1.85%	3.30%	1.42%	1.48%	.00%	-1.66%	-2.83%	-.46%	-.17%	-.03%
1990-1995	.88%	1.58%	2.80%	1.20%	1.56%	.00%	-1.63%	-2.94%	-.47%	-.11%	-.03%
1995-2000	.88%	1.58%	2.80%	1.20%	1.54%	.00%	-1.59%	-2.92%	-.46%	-.11%	-.03%
1981-2000	.97%	1.84%	2.86%	1.00%	1.52%	.00%	-1.63%	-2.87%	-.46%	-.14%	-.03%

#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

KENTUCKY (REGION=South Atlantic)

ENERGY PRICES

	GAS			ELECTRIC			PETROLEUM				
YEAR	RESIDENT	COMMERC	INDUSTR	RESIDENT	COMMERC	INDUSTR	RESIDENT	COMMERC	INDUSTR	COAL	LPG
	($1981/MMBTU)			($1981/KWH)	(INDEX)		($1981/GAL)	(INDEX)		(INDEX)	($1981/GAL)
1981	3.50	3.39	3.07	.0524	.0517	.0360	1.2050	100.00	100.00	100.00	.4800
1982	4.06	3.95	3.63	.0598	.0590	.0420	1.1027	91.51	91.51	103.00	.5050
1983	4.19	4.08	3.76	.0593	.0585	.0416	.9820	81.49	81.49	106.09	.5312
1984	4.13	4.02	3.70	.0625	.0617	.0439	.9538	79.15	79.15	109.27	.5580
1985	3.97	3.86	3.54	.0633	.0625	.0445	.9376	77.81	77.81	112.55	.5879
1986	3.98	3.87	3.55	.0652	.0643	.0458	.9442	78.36	78.36	115.93	.6185
1987	4.21	4.10	3.78	.0637	.0628	.0447	.9508	78.91	78.91	119.41	.6506
1988	4.62	4.51	4.19	.0668	.0659	.0469	.9575	79.46	79.46	122.99	.6845
1989	5.07	4.96	4.64	.0681	.0672	.0479	.9642	80.01	80.01	126.68	.7201
1990	5.40	5.29	4.97	.0701	.0691	.0492	.9709	80.58	80.58	130.48	.7575
1991	5.56	5.45	5.13	.0697	.0687	.0489	.9826	81.54	81.54	134.39	.7969
1992	5.55	5.44	5.12	.0736	.0726	.0517	.9944	82.52	82.52	138.42	.8383
1993	5.50	5.39	5.07	.0684	.0675	.0480	1.0063	83.51	83.51	142.58	.8819
1994	5.58	5.47	5.15	.0749	.0739	.0526	1.0184	84.51	84.51	146.85	.9278
1995	5.72	5.61	5.29	.0678	.0669	.0477	1.0306	85.53	85.53	151.26	.9760
1996	5.95	5.84	5.52	.0740	.0730	.0520	1.0512	87.24	87.24	155.80	1.0268
1997	6.18	6.07	5.75	.0688	.0679	.0484	1.0722	88.98	88.98	160.47	1.0802
1998	6.41	6.30	5.98	.0745	.0735	.0524	1.0937	90.76	90.76	165.28	1.1363
1999	6.68	6.57	6.25	.0691	.0681	.0485	1.1156	92.58	92.58	170.24	1.1954
2000	6.97	6.86	6.54	.0735	.0725	.0517	1.1379	94.43	94.43	175.35	1.2576

ANNUAL RATES OF GROWTH

1981-1985	3.20%	3.30%	3.63%	4.84%	4.83%	4.83%	-6.08%	-6.08%	-6.08%	3.00%	5.20%
1985-1990	6.35%	6.51%	7.02%	2.05%	2.05%	2.05%	.70%	.70%	.70%	3.00%	5.20%
1990-1995	1.16%	1.18%	1.26%	-.65%	-.65%	-.65%	1.20%	1.20%	1.20%	3.00%	5.20%
1995-2000	4.03%	4.11%	4.33%	1.62%	1.63%	1.62%	2.00%	2.00%	2.00%	3.00%	5.20%
1981-2000	3.69%	3.78%	4.06%	1.80%	1.80%	1.80%	-.30%	-.30%	-.30%	3.00%	5.20%

#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

KENTUCKY (REGION=South Atlantic)

VALUE ADDED INDEXES BY 2-DIGIT SIC

YEAR	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1981	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1982	.99	.89	.91	.93	.88	1.01	.90	.85	.65	.82	.81	.95	.95	.92
1983	1.01	.93	.94	.97	.92	1.02	.95	.88	.69	.85	.86	1.00	.98	.98
1984	1.04	.97	.97	1.01	.95	1.04	1.00	.92	.73	.89	.91	1.05	1.01	1.04
1985	1.07	1.01	1.01	1.05	.99	1.05	1.06	.96	.77	.92	.96	1.10	1.04	1.10
1986	1.10	1.06	1.05	1.10	1.05	1.05	1.13	1.01	.81	.96	1.02	1.18	1.09	1.14
1987	1.12	1.11	1.09	1.15	1.11	1.05	1.20	1.07	.84	1.00	1.08	1.26	1.14	1.17
1988	1.15	1.17	1.13	1.20	1.18	1.05	1.28	1.14	.87	1.04	1.15	1.34	1.19	1.21
1989	1.18	1.23	1.17	1.26	1.25	1.05	1.36	1.21	.91	1.08	1.22	1.43	1.24	1.25
1990	1.21	1.29	1.22	1.32	1.32	1.05	1.45	1.28	.94	1.12	1.29	1.53	1.30	1.29
1991	1.24	1.34	1.26	1.36	1.38	1.05	1.54	1.33	.98	1.15	1.35	1.60	1.33	1.33
1992	1.27	1.40	1.30	1.41	1.43	1.05	1.64	1.39	1.01	1.19	1.41	1.67	1.36	1.36
1993	1.31	1.46	1.34	1.46	1.49	1.05	1.75	1.45	1.05	1.22	1.47	1.75	1.39	1.40
1994	1.34	1.52	1.38	1.50	1.54	1.05	1.86	1.51	1.09	1.25	1.54	1.83	1.42	1.44
1995	1.38	1.59	1.43	1.56	1.60	1.04	1.98	1.57	1.12	1.29	1.61	1.91	1.45	1.48
1996	1.41	1.66	1.47	1.61	1.67	1.04	2.08	1.62	1.16	1.32	1.68	2.00	1.48	1.52
1997	1.45	1.73	1.52	1.66	1.74	1.04	2.18	1.68	1.21	1.36	1.76	2.09	1.51	1.56
1998	1.49	1.80	1.57	1.72	1.81	1.04	2.28	1.73	1.25	1.40	1.84	2.18	1.55	1.60
1999	1.53	1.88	1.62	1.78	1.88	1.04	2.39	1.79	1.29	1.44	1.92	2.28	1.58	1.65
2000	1.56	1.96	1.67	1.84	1.96	1.03	2.51	1.85	1.34	1.48	2.00	2.38	1.62	1.70

ANNUAL RATES OF GROWTH

1981-1985	1.71%	.25%	.25%	1.23%	-.25%	1.23%	1.47%	-1.02%	-6.33%	-2.06%	-1.02%	2.41%	.99%	2.41%
1985-1990	2.49%	5.02%	3.85%	4.68%	5.92%	.00%	6.47%	5.92%	4.07%	4.01%	6.09%	6.82%	4.56%	3.24%
1990-1995	2.66%	4.27%	3.23%	3.40%	3.92%	-.19%	6.43%	4.17%	3.57%	2.87%	4.53%	4.54%	2.21%	2.79%
1995-2000	2.48%	4.27%	3.15%	3.36%	4.14%	-.19%	4.86%	3.34%	3.65%	2.79%	4.43%	4.50%	2.24%	2.81%
1981-2000	2.37%	3.61%	2.74%	3.26%	3.61%	.16%	4.96%	3.29%	1.55%	2.08%	3.72%	4.67%	2.57%	2.83%

037 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

KENTUCKY (REGION=South Atlantic)

WAGE INDEXES BY 2-DIGIT SIC

YEAR	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1981	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1982	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
1983	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
1984	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
1985	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08
1986	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
1987	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13
1988	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15
1989	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17
1990	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
1991	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22
1992	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24
1993	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27
1994	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29
1995	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32
1996	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35
1997	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37
1998	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40
1999	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43
2000	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46

ANNUAL RATES OF GROWTH

1981-1985	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1985-1990	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1990-1995	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1995-2000	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1981-2000	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%

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#37 -- ADDABBO - HEINZ SCENARIO                                                    FRI, MAY 13, 1983,  3:37 PM

LOUIS.    (REGION=Southwest              )

                                          DEMOGRAPHIC DATA
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                                                                         --RATIO OF TOTAL COMMERCIAL ACTIVITY--
                          HOUSE-   PERSONAL                      URBAN   --------------------------------------   NON-MFG/
    YEAR     PEOPLE        HOLDS     INCOME  INCOME/HH     APTS   RATIO    MINING  AGRICULT    TRANSP CONSTRUCT   TOT EARN
--------   --------     --------   --------   --------  -------- --------  -------- --------  -------- --------   --------
                                (#000,000) (#1981/HH) -------------------------(RATIOS)-------------------------------
    1981    4251335      1445569      41001      28363     .1114  1.0000     .0556    .0430     .1102    .0904      .8143
    1982    4300227      1480986      40386      27270     .1131  1.0000     .0543    .0422     .1096    .0901      .8144
    1983    4349680      1517269      41598      27416     .1148  1.0000     .0531    .0413     .1089    .0897      .8144
    1984    4399703      1554442      43428      27938     .1165  1.0000     .0519    .0404     .1083    .0894      .8144
    1985    4450300      1592527      45165      28361     .1182  1.0000     .0508    .0396     .1076    .0891      .8145
    1986    4499253      1623899      46655      28730     .1200  1.0000     .0497    .0388     .1070    .0887      .8145
    1987    4548744      1655890      48195      29105     .1218  1.0000     .0485    .0380     .1063    .0884      .8145
    1988    4598780      1688511      49785      29485     .1236  1.0000     .0475    .0372     .1057    .0881      .8146
    1989    4649366      1721775      51428      29869     .1254  1.0000     .0464    .0364     .1050    .0877      .8146
    1990    4700509      1755694      53126      30259     .1273  1.0000     .0454    .0357     .1044    .0874      .8146
    1991    4734822      1780801      54613      30668     .1292  1.0000     .0444    .0350     .1038    .0871      .8146
    1992    4769386      1806266      56142      31082     .1313  1.0000     .0435    .0343     .1032    .0868      .8146
    1993    4804202      1832097      57714      31502     .1332  1.0000     .0425    .0337     .1026    .0865      .8146
    1994    4839272      1858296      59330      31927     .1353  1.0000     .0416    .0330     .1020    .0862      .8146
    1995    4874598      1884869      60991      32358     .1374  1.0000     .0407    .0324     .1015    .0859      .8146
    1996    4910182      1911824      62699      32796     .1394  1.0000     .0398    .0318     .1009    .0856      .8146
    1997    4946026      1939163      64455      33238     .1417  1.0000     .0390    .0312     .1003    .0853      .8146
    1998    4982131      1966893      66260      33687     .1437  1.0000     .0381    .0306     .0997    .0850      .8146
    1999    5018500      1995019      68115      34142     .1460  1.0000     .0373    .0300     .0992    .0847      .8146
    2000    5055135      2023548      70022      34604     .1483  1.0000     .0365    .0294     .0986    .0845      .8146


ANNUAL RATES OF GROWTH
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1981-1985       1.15%       2.45%       2.45%      -.00%      1.49%      .00%    -2.23%    -2.04%     -.60%     -.36%      .01%
1985-1990       1.10%       1.97%       3.30%      1.30%      1.49%      .00%    -2.22%    -2.05%     -.60%     -.38%      .00%
1990-1995        .73%       1.43%       2.80%      1.35%      1.54%      .00%    -2.16%    -1.92%     -.56%     -.35%      .00%
1995-2000        .73%       1.43%       2.80%      1.35%      1.54%      .00%    -2.15%    -1.92%     -.58%     -.33%      .00%

1981-2000        .92%       1.79%       2.86%      1.05%      1.52%      .00%    -2.19%    -1.98%     -.58%     -.35%      .00%
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#37 -- ADDABBO - HEINZ SCENARIO                                                          FRI, MAY 13, 1983,  3:37 PM

LOUIS.   (REGION=Southwest             )

                                              ENERGY PRICES
                                              -------------

                         GAS                                 ELECTRIC                            PETROLEUM
             ------------------------------   ------------------------------   ------------------------------
    YEAR     RESIDENT   COMMERC    INDUSTR    RESIDENT   COMMERC    INDUSTR    RESIDENT   COMMERC    INDUSTR        COAL       LPG
  --------   --------   --------   --------   --------   --------   --------   --------   --------   --------     --------   --------
             -------( $1981/MMBTU)-------($1981/KWH) ----( INDEX)------($1981/GAL) -----( INDEX)-----     ( INDEX)($1981/GAL)

     1981      3.72       3.40       2.77       .0594      .0552      .0394     1.2050     100.00     100.00       100.00      .4000
     1982      4.28       3.96       3.33       .0604      .0635      .0454     1.1027      91.51      91.51       103.00      .5050
     1983      4.41       4.09       3.46       .0716      .0665      .0475      .9820      81.49      81.49       106.09      .5312
     1984      4.35       4.03       3.40       .0760      .0706      .0504      .9530      79.15      79.15       109.27      .5500
     1985      4.19       3.87       3.24       .0799      .0742      .0530      .9376      77.81      77.81       112.55      .5879
     1986      4.20       3.88       3.25       .0827      .0768      .0548      .9442      78.36      78.36       115.93      .6185
     1987      4.43       4.11       3.48       .0831      .0772      .0551      .9508      78.91      78.91       119.41      .6506
     1988      4.84       4.52       3.89       .0841      .0781      .0558      .9575      79.46      79.46       122.99      .6845
     1989      5.29       4.97       4.34       .0855      .0794      .0567      .9642      80.01      80.01       126.68      .7201
     1990      5.62       5.30       4.67       .0861      .0800      .0571      .9709      80.58      80.58       130.48      .7575
     1991      5.78       5.46       4.83       .0875      .0813      .0580      .9826      81.54      81.54       134.39      .7969
     1992      5.77       5.45       4.82       .0894      .0830      .0593      .9944      82.52      82.52       138.42      .8383
     1993      5.72       5.40       4.77       .0811      .0753      .0538     1.0063      83.51      83.51       142.58      .8819
     1994      5.80       5.48       4.85       .0899      .0835      .0596     1.0184      84.51      84.51       146.85      .9278
     1995      5.94       5.62       4.99       .0806      .0749      .0535     1.0306      85.53      85.53       151.26      .9760
     1996      6.17       5.85       5.22       .0884      .0821      .0587     1.0512      87.24      87.24       155.80     1.0260
     1997      6.40       6.08       5.45       .0806      .0748      .0534     1.0722      88.98      88.98       160.47     1.0802
     1998      6.63       6.31       5.68       .0884      .0821      .0586     1.0937      90.76      90.76       165.28     1.1363
     1999      6.90       6.58       5.95       .0810      .0752      .0537     1.1156      92.58      92.58       170.24     1.1954
     2000      7.19       6.87       6.24       .0871      .0809      .0577     1.1379      94.43      94.43       175.35     1.2576


ANNUAL RATES OF GROWTH
--------------------

1981-1985      3.02%      3.29%      4.00%      7.68%      7.68%      7.68%     -6.08%     -6.08%     -6.08%       3.00%      5.20%
1985-1990      6.05%      6.49%      7.59%      1.51%      1.51%      1.51%       .70%       .70%       .70%       3.00%      5.20%
1990-1995      1.11%      1.18%      1.33%     -1.31%     -1.31%     -1.31%      1.20%      1.20%      1.20%       3.00%      5.20%
1995-2000      3.89%      4.10%      4.57%      1.55%      1.55%      1.56%      2.00%      2.00%      2.00%       3.00%      5.20%

1981-2000      3.53%      3.77%      4.37%      2.03%      2.03%      2.03%      -.30%      -.30%      -.30%       3.00%      5.20%
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#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

LOUIS. (REGION=Southwest)

VALUE ADDED INDEXES BY 2-DIGIT SIC

YEAR	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1981	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1982	.99	.89	.91	.93	.88	1.01	.90	.85	.65	.82	.81	.95	.95	.92
1983	1.01	.93	.94	.97	.92	1.02	.95	.88	.69	.85	.86	1.00	.98	.98
1984	1.04	.97	.97	1.01	.95	1.04	1.00	.92	.73	.89	.91	1.05	1.01	1.04
1985	1.07	1.01	1.01	1.05	.99	1.05	1.06	.96	.77	.92	.96	1.10	1.04	1.10
1986	1.10	1.06	1.05	1.10	1.05	1.05	1.13	1.01	.81	.96	1.02	1.18	1.09	1.14
1987	1.12	1.11	1.09	1.15	1.11	1.05	1.20	1.07	.84	1.00	1.08	1.26	1.14	1.17
1988	1.15	1.17	1.13	1.20	1.18	1.05	1.28	1.14	.87	1.04	1.15	1.34	1.19	1.21
1989	1.18	1.23	1.17	1.26	1.25	1.05	1.36	1.21	.91	1.08	1.22	1.43	1.24	1.25
1990	1.21	1.29	1.22	1.32	1.32	1.05	1.45	1.28	.94	1.12	1.29	1.53	1.30	1.29
1991	1.24	1.34	1.26	1.36	1.38	1.05	1.54	1.33	.98	1.15	1.35	1.60	1.33	1.33
1992	1.27	1.40	1.30	1.41	1.43	1.05	1.64	1.39	1.01	1.19	1.41	1.67	1.36	1.36
1993	1.31	1.46	1.34	1.46	1.49	1.05	1.75	1.45	1.05	1.22	1.47	1.75	1.39	1.40
1994	1.34	1.52	1.38	1.50	1.54	1.05	1.86	1.51	1.09	1.25	1.54	1.83	1.42	1.44
1995	1.38	1.59	1.43	1.56	1.60	1.04	1.98	1.57	1.12	1.29	1.61	1.91	1.45	1.48
1996	1.41	1.66	1.47	1.61	1.67	1.04	2.08	1.62	1.16	1.32	1.68	2.00	1.48	1.52
1997	1.45	1.73	1.52	1.66	1.74	1.04	2.18	1.68	1.21	1.36	1.76	2.09	1.51	1.56
1998	1.49	1.80	1.57	1.72	1.81	1.04	2.28	1.73	1.25	1.40	1.84	2.18	1.55	1.60
1999	1.53	1.88	1.62	1.78	1.88	1.04	2.39	1.79	1.29	1.44	1.92	2.28	1.58	1.65
2000	1.56	1.96	1.67	1.84	1.96	1.03	2.51	1.85	1.34	1.48	2.00	2.38	1.62	1.70

ANNUAL RATES OF GROWTH

1981-1985	1.71%	.25%	.25%	1.23%	-.25%	1.23%	1.47%	-1.02%	-6.33%	-2.06%	-1.02%	2.41%	.99%	2.41%
1985-1990	2.49%	5.02%	3.85%	4.68%	5.92%	.00%	6.47%	5.92%	4.07%	4.01%	6.09%	6.02%	4.56%	3.24%
1990-1995	2.66%	4.27%	3.23%	3.40%	3.92%	-.19%	6.43%	4.17%	3.57%	2.87%	4.53%	4.54%	2.21%	2.79%
1995-2000	2.48%	4.27%	3.15%	3.36%	4.14%	-.19%	4.86%	3.34%	3.65%	2.79%	4.43%	4.50%	2.24%	2.81%
1981-2000	2.37%	3.61%	2.74%	3.26%	3.61%	.16%	4.96%	3.29%	1.55%	2.08%	3.72%	4.67%	2.57%	2.83%

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#37 -- ADDABBO - HEINZ SCENARIO                                                          FRI, MAY 13, 1983,  3:37 PM

LOUIS.   <REGION=Southwest          >

                                          WAGE INDEXES BY 2-DIGIT SIC
                                          ---------------------------

                                                                                 PRIMARY  FABRIC.           ELECTRIC
YEAR     FOOD  TEXTILE   LUMBER     PAPER CHEMICAL    PETROL   RUBBER     STONE    METAL    METAL  MACHINE  MACHINE    TRANSP    OTHER
----  -------  -------  -------   ------- -------    -------  -------   -------  -------  -------  -------  -------   -------  -------
1981     1.00     1.00     1.00      1.00     1.00      1.00     1.00      1.00     1.00     1.00     1.00     1.00      1.00     1.00
1982     1.02     1.02     1.02      1.02     1.02      1.02     1.02      1.02     1.02     1.02     1.02     1.02      1.02     1.02
1983     1.04     1.04     1.04      1.04     1.04      1.04     1.04      1.04     1.04     1.04     1.04     1.04      1.04     1.04
1984     1.06     1.06     1.06      1.06     1.06      1.06     1.06      1.06     1.06     1.06     1.06     1.06      1.06     1.06
1985     1.08     1.08     1.08      1.08     1.08      1.08     1.08      1.08     1.08     1.08     1.08     1.08      1.08     1.08
1986     1.10     1.10     1.10      1.10     1.10      1.10     1.10      1.10     1.10     1.10     1.10     1.10      1.10     1.10
1987     1.13     1.13     1.13      1.13     1.13      1.13     1.13      1.13     1.13     1.13     1.13     1.13      1.13     1.13
1988     1.15     1.15     1.15      1.15     1.15      1.15     1.15      1.15     1.15     1.15     1.15     1.15      1.15     1.15
1989     1.17     1.17     1.17      1.17     1.17      1.17     1.17      1.17     1.17     1.17     1.17     1.17      1.17     1.17
1990     1.20     1.20     1.20      1.20     1.20      1.20     1.20      1.20     1.20     1.20     1.20     1.20      1.20     1.20
1991     1.22     1.22     1.22      1.22     1.22      1.22     1.22      1.22     1.22     1.22     1.22     1.22      1.22     1.22
1992     1.24     1.24     1.24      1.24     1.24      1.24     1.24      1.24     1.24     1.24     1.24     1.24      1.24     1.24
1993     1.27     1.27     1.27      1.27     1.27      1.27     1.27      1.27     1.27     1.27     1.27     1.27      1.27     1.27
1994     1.29     1.29     1.29      1.29     1.29      1.29     1.29      1.29     1.29     1.29     1.29     1.29      1.29     1.29
1995     1.32     1.32     1.32      1.32     1.32      1.32     1.32      1.32     1.32     1.32     1.32     1.32      1.32     1.32
1996     1.35     1.35     1.35      1.35     1.35      1.35     1.35      1.35     1.35     1.35     1.35     1.35      1.35     1.35
1997     1.37     1.37     1.37      1.37     1.37      1.37     1.37      1.37     1.37     1.37     1.37     1.37      1.37     1.37
1998     1.40     1.40     1.40      1.40     1.40      1.40     1.40      1.40     1.40     1.40     1.40     1.40      1.40     1.40
1999     1.43     1.43     1.43      1.43     1.43      1.43     1.43      1.43     1.43     1.43     1.43     1.43      1.43     1.43
2000     1.46     1.46     1.46      1.46     1.46      1.46     1.46      1.46     1.46     1.46     1.46     1.46      1.46     1.46


ANNUAL RATES OF GROWTH
----------------------

1981-1985 2.00%     2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%
1985-1990 2.00%     2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%
1990-1995 2.00%     2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%
1995-2000 2.00%     2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%

1981-2000 2.00%     2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%
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#37 -- ADDABBO - HEINZ SCENARIO                                                      FRI, MAY 13, 1983,  3:37 PM

MAINE     (REGION=New England          )

                                                 DEMOGRAPHIC DATA
                                                 ----------------

                                                                              --RATIO OF TOTAL COMMERCIAL ACTIVITY--
                            HOUSE-   PERSONAL                        URBAN    -------------------------------------   NON-MFG/
    YEAR     PEOPLE      HOLDS      INCOME  INCOME/HH       APTS    RATIO     MINING  AGRICULT     TRANSP CONSTRUCT  TOT EARN
  --------  --------  --------   --------   --------   --------  --------   --------  --------   --------  --------  --------
                               ($000,000) ($1981/HH) ------------------------------(RATIOS)-------------------------------------
    1981    1131750    402465       9669      24024      .1013    1.0000      .0008     .0437      .0886     .0877     .7159
    1982    1138541    410071       9524      23225      .1027    1.0000      .0008     .0426      .0883     .0874     .7172
    1983    1145372    417822       9810      23478      .1043    1.0000      .0008     .0416      .0881     .0871     .7185
    1984    1152244    425719      10241      24056      .1058    1.0000      .0007     .0405      .0879     .0868     .7197
    1985    1159157    433765      10651      24555      .1074    1.0000      .0007     .0395      .0877     .0865     .7210
    1986    1173184    442788      11002      24848      .1089    1.0000      .0007     .0386      .0874     .0862     .7223
    1987    1187379    451997      11366      25145      .1106    1.0000      .0007     .0376      .0872     .0859     .7236
    1988    1201747    461398      11741      25446      .1122    1.0000      .0007     .0367      .0870     .0857     .7249
    1989    1216287    470996      12128      25750      .1139    1.0000      .0007     .0358      .0868     .0854     .7261
    1990    1231004    480792      12528      26058      .1156    1.0000      .0007     .0349      .0865     .0851     .7274
    1991    1243437    489015      12879      26337      .1173    1.0000      .0007     .0340      .0862     .0848     .7287
    1992    1255995    497376      13240      26619      .1191    1.0000      .0007     .0332      .0859     .0845     .7300
    1993    1268681    505881      13610      26904      .1208    1.0000      .0007     .0323      .0856     .0842     .7313
    1994    1281495    514532      13991      27193      .1226    1.0000      .0007     .0315      .0853     .0839     .7326
    1995    1294438    523331      14383      27484      .1244    1.0000      .0007     .0307      .0850     .0836     .7339
    1996    1307511    532279      14786      27779      .1263    1.0000      .0007     .0300      .0847     .0833     .7352
    1997    1320717    541381      15200      28076      .1282    1.0000      .0007     .0292      .0844     .0830     .7366
    1998    1334056    550639      15626      28377      .1300    1.0000      .0007     .0285      .0841     .0827     .7379
    1999    1347529    560056      16063      28681      .1320    1.0000      .0007     .0278      .0838     .0824     .7392
    2000    1361140    569632      16513      28989      .1339    1.0000      .0007     .0271      .0836     .0822     .7405


ANNUAL RATES OF GROWTH
----------------------

1981-1985       .60%     1.89%     2.45%       .55%     1.47%       .00%    -3.20%    -2.49%      -.25%     -.34%       .18%
1985-1990      1.21%     2.08%     3.30%      1.20%     1.48%       .00%      .00%    -2.45%      -.28%     -.33%       .18%
1990-1995      1.01%     1.71%     2.80%      1.07%     1.48%       .00%      .00%    -2.53%      -.35%     -.36%       .18%
1995-2000      1.01%     1.71%     2.80%      1.07%     1.48%       .00%      .00%    -2.46%      -.33%     -.34%       .18%

1981-2000       .98%     1.85%     2.86%       .99%     1.48%       .00%     -.70%    -2.48%      -.31%     -.34%       .18%
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#37 -- ADDABBO - HEINZ SCENARIO                                                          FRI, MAY 13, 1983,  3:37 PM

MAINE    (REGION=New England          )

                                                  ENERGY PRICES
                                                  -------------

                           GAS                            ELECTRIC                          PETROLEUM
              ------------------------------ ------------------------------ ------------------------------
    YEAR   RESIDENT   COMMERC   INDUSTR   RESIDENT   COMMERC   INDUSTR   RESIDENT   COMMERC   INDUSTR      COAL       LPG
 --------  --------  --------  --------  --------  --------  --------  --------  --------  --------   --------  --------
           -------( $1981/MMBTU)-------($1981/KWH) ----( INDEX)------($1981/GAL) -----( INDEX)-----   ( INDEX)($1981/GAL)

     1981      7.43      6.00      5.33     .0890     .0867     .0705    1.2050    100.00    100.00     100.00     .4800
     1982      7.99      6.56      5.89     .0940     .0916     .0745    1.1027     91.51     91.51     103.00     .5050
     1983      8.12      6.69      6.02     .0950     .0925     .0752     .9820     81.49     81.49     106.09     .5312
     1984      8.06      6.63      5.96     .0973     .0948     .0770     .9538     79.15     79.15     109.27     .5588
     1985      7.90      6.47      5.80     .1038     .1011     .0822     .9376     77.81     77.81     112.55     .5879
     1986      7.91      6.48      5.81     .1025     .0998     .0811     .9442     78.36     78.36     115.93     .6185
     1987      8.14      6.71      6.04     .1118     .1089     .0885     .9508     78.91     78.91     119.41     .6506
     1988      8.55      7.12      6.45     .1077     .1049     .0853     .9575     79.46     79.46     122.99     .6845
     1989      9.00      7.57      6.90     .1048     .1021     .0830     .9642     80.01     80.01     126.68     .7201
     1990      9.33      7.90      7.23     .1041     .1014     .0824     .9709     80.58     80.58     130.48     .7575
     1991      9.49      8.06      7.39     .1049     .1022     .0831     .9826     81.54     81.54     134.39     .7969
     1992      9.48      8.05      7.38     .1027     .1000     .0813     .9944     82.52     82.52     138.42     .8383
     1993      9.43      8.00      7.33     .0997     .0971     .0789    1.0063     83.51     83.51     142.58     .8819
     1994      9.51      8.08      7.41     .0970     .0945     .0768    1.0184     84.51     84.51     146.85     .9278
     1995      9.65      8.22      7.55     .0927     .0903     .0734    1.0306     85.53     85.53     151.26     .9760
     1996      9.88      8.45      7.78     .0907     .0884     .0719    1.0512     87.24     87.24     155.80    1.0268
     1997     10.11      8.68      8.01     .0890     .0867     .0705    1.0722     88.98     88.98     160.47    1.0802
     1998     10.34      8.91      8.24     .0888     .0865     .0703    1.0937     90.76     90.76     165.28    1.1363
     1999     10.61      9.18      8.51     .0870     .0848     .0689    1.1156     92.58     92.58     170.24    1.1954
     2000     10.90      9.47      8.80     .0860     .0837     .0680    1.1379     94.43     94.43     175.35    1.2576


ANNUAL RATES OF GROWTH
---------------------

1981-1985     1.55%     1.90%     2.14%     3.91%     3.91%     3.91%    -6.08%    -6.08%    -6.08%      3.00%     5.20%
1985-1990     3.38%     4.07%     4.51%      .06%      .06%      .06%      .70%      .70%      .70%      3.00%     5.20%
1990-1995      .68%      .80%      .87%    -2.29%    -2.29%    -2.29%     1.20%     1.20%     1.20%      3.00%     5.20%
1995-2000     2.47%     2.87%     3.11%    -1.50%    -1.50%    -1.50%     2.00%     2.00%     2.00%      3.00%     5.20%

1981-2000     2.04%     2.43%     2.67%     -.18%     -.18%     -.18%     -.30%     -.30%     -.30%      3.00%     5.20%
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#37 -- ADDABBO - HEINZ SCENARIO                                                  FRI, MAY 13, 1983,  3:37 PM

MAINE    (REGION=New England         )

                                              VALUE ADDED INDEXES BY 2-DIGIT SIC
                                              ----------------------------------

                                                                          PRIMARY  FABRIC.           ELECTRIC
YEAR      FOOD  TEXTILE   LUMBER     PAPER CHEMICAL   PETROL   RUBBER    STONE    METAL    METAL  MACHINE  MACHINE   TRANSP    OTHER
----   -------  -------  -------   -------  -------  -------  -------  -------  -------  -------  -------  -------  -------  -------
1981      1.00     1.00     1.00      1.00     1.00     1.00     1.00     1.00     1.00     1.00     1.00     1.00     1.00     1.00
1982       .99      .89      .91       .93      .88     1.01      .90      .85      .65      .82      .81      .95      .95      .92
1983      1.01      .93      .94       .97      .92     1.02      .95      .88      .69      .85      .86     1.00      .98      .98
1984      1.04      .97      .97      1.01      .95     1.04     1.00      .92      .73      .89      .91     1.05     1.01     1.04
1985      1.07     1.01     1.01      1.05      .99     1.05     1.06      .96      .77      .92      .96     1.10     1.04     1.10
1986      1.10     1.06     1.05      1.10     1.05     1.05     1.13     1.01      .81      .96     1.02     1.18     1.09     1.14
1987      1.12     1.11     1.09      1.15     1.11     1.05     1.20     1.07      .84     1.00     1.08     1.26     1.14     1.17
1988      1.15     1.17     1.13      1.20     1.18     1.05     1.28     1.14      .87     1.04     1.15     1.34     1.19     1.21
1989      1.18     1.23     1.17      1.26     1.25     1.05     1.36     1.21      .91     1.08     1.22     1.43     1.24     1.25
1990      1.21     1.29     1.22      1.32     1.32     1.05     1.45     1.28      .94     1.12     1.29     1.53     1.30     1.29
1991      1.24     1.34     1.26      1.36     1.38     1.05     1.54     1.33      .98     1.15     1.35     1.60     1.33     1.33
1992      1.27     1.40     1.30      1.41     1.43     1.05     1.64     1.39     1.01     1.19     1.41     1.67     1.36     1.36
1993      1.31     1.46     1.34      1.46     1.49     1.05     1.75     1.45     1.05     1.22     1.47     1.75     1.39     1.40
1994      1.34     1.52     1.38      1.50     1.54     1.05     1.86     1.51     1.09     1.25     1.54     1.83     1.42     1.44
1995      1.38     1.59     1.43      1.56     1.60     1.04     1.98     1.57     1.12     1.29     1.61     1.91     1.45     1.48
1996      1.41     1.66     1.47      1.61     1.67     1.04     2.08     1.62     1.16     1.32     1.68     2.00     1.48     1.52
1997      1.45     1.73     1.52      1.66     1.74     1.04     2.18     1.68     1.21     1.36     1.76     2.09     1.51     1.56
1998      1.49     1.80     1.57      1.72     1.81     1.04     2.28     1.73     1.25     1.40     1.84     2.18     1.55     1.60
1999      1.53     1.88     1.62      1.78     1.88     1.04     2.39     1.79     1.29     1.44     1.92     2.28     1.58     1.65
2000      1.56     1.96     1.67      1.84     1.96     1.03     2.51     1.85     1.34     1.48     2.00     2.38     1.62     1.70


ANNUAL RATES OF GROWTH
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1981-1985 1.71%     .25%     .25%     1.23%    -.25%    1.23%    1.47%   -1.02%   -6.33%   -2.06%   -1.02%    2.41%     .99%    2.41%
1985-1990 2.49%    5.02%    3.85%     4.68%    5.92%     .00%    6.47%    5.92%    4.07%    4.01%    6.09%    6.82%    4.56%    3.24%
1990-1995 2.66%    4.27%    3.23%     3.40%    3.92%    -.19%    6.43%    4.17%    3.57%    2.87%    4.53%    4.54%    2.21%    2.79%
1995-2000 2.48%    4.27%    3.15%     3.36%    4.14%    -.19%    4.86%    3.34%    3.65%    2.79%    4.43%    4.50%    2.24%    2.81%

1981-2000 2.37%    3.61%    2.74%     3.26%    3.61%     .16%    4.96%    3.29%    1.55%    2.08%    3.72%    4.67%    2.57%    2.83%
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#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

MAINE (REGION=New England)

WAGE INDEXES BY 2-DIGIT SIC

YEAR	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1981	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1982	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
1983	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
1984	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
1985	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08
1986	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
1987	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13
1988	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15
1989	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17
1990	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
1991	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22
1992	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24
1993	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27
1994	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29
1995	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32
1996	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35
1997	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37
1998	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40
1999	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43
2000	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46

ANNUAL RATES OF GROWTH

1981-1985	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1985-1990	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1990-1995	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1995-2000	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1981-2000	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%

#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

MD.-D.C. (REGION=Middle Atlantic)

DEMOGRAPHIC DATA

YEAR	PEOPLE	HOUSE-HOLDS	PERSONAL INCOME	INCOME/HH	APTS	URBAN RATIO	--RATIO OF TOTAL COMMERCIAL ACTIVITY-- MINING	AGRICULT	TRANSP	CONSTRUCT	NON-MFG/ TOT EARN
			($000,000)	($1981/HH)	(RATIOS)						
1981	4863222	1739196	9669	5559	.2684	1.0000	.0012	.0078	.0684	.0693	.0711
1982	4872462	1764761	9524	5397	.2723	1.0000	.0011	.0075	.0681	.0690	.0728
1983	4881719	1790704	9810	5478	.2763	1.0000	.0011	.0073	.0679	.0686	.0744
1984	4890994	1817027	10241	5636	.2804	1.0000	.0011	.0070	.0676	.0683	.0759
1985	4900287	1843737	10651	5777	.2845	1.0000	.0011	.0068	.0673	.0680	.0775
1986	4931159	1871208	11002	5880	.2887	1.0000	.0011	.0066	.0670	.0676	.0791
1987	4962225	1899090	11366	5985	.2929	1.0000	.0011	.0064	.0668	.0673	.0806
1988	4993487	1927366	11741	6091	.2972	1.0000	.0011	.0061	.0665	.0670	.0821
1989	5024946	1956104	12128	6200	.3015	1.0000	.0010	.0059	.0663	.0667	.0836
1990	5056603	1985250	12520	6311	.3059	1.0000	.0010	.0057	.0660	.0663	.0850
1991	5076829	2007088	12879	6417	.3104	1.0000	.0010	.0055	.0657	.0659	.0864
1992	5097136	2029165	13240	6525	.3149	1.0000	.0010	.0053	.0654	.0655	.0878
1993	5117524	2051486	13610	6634	.3195	1.0000	.0010	.0051	.0651	.0651	.0892
1994	5137994	2074053	13991	6746	.3242	1.0000	.0010	.0050	.0648	.0647	.0906
1995	5158546	2096867	14383	6859	.3288	1.0000	.0010	.0048	.0645	.0643	.0920
1996	5179180	2119933	14786	6975	.3337	1.0000	.0010	.0046	.0642	.0639	.0934
1997	5199896	2143252	15200	7092	.3385	1.0000	.0010	.0045	.0639	.0636	.0949
1998	5220695	2166827	15626	7211	.3435	1.0000	.0010	.0043	.0636	.0632	.0963
1999	5241578	2190662	16063	7333	.3485	1.0000	.0010	.0042	.0634	.0628	.0977
2000	5262544	2214759	16513	7456	.3535	1.0000	.0010	.0040	.0631	.0624	.0991

ANNUAL RATES OF GROWTH

1981-1985	.19%	1.47%	2.45%	.96%	1.47%	.00%	-2.15%	-3.37%	-.40%	-.47%	.18%
1985-1990	.63%	1.49%	3.30%	1.78%	1.46%	.00%	-1.89%	-3.47%	-.39%	-.51%	.17%
1990-1995	.40%	1.10%	2.80%	1.68%	1.45%	.00%	.00%	-3.38%	-.46%	-.61%	.16%
1995-2000	.40%	1.10%	2.80%	1.68%	1.46%	.00%	.00%	-3.58%	-.44%	-.60%	.16%
1981-2000	.42%	1.28%	2.86%	1.56%	1.46%	.00%	-.96%	-3.45%	-.42%	-.55%	.17%

#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

MD.-D.C. (REGION=Middle Atlantic)

ENERGY PRICES

	GAS			ELECTRIC			PETROLEUM				
YEAR	RESIDENT	COMMERC	INDUSTR	RESIDENT	COMMERC	INDUSTR	RESIDENT	COMMERC	INDUSTR	COAL	LPG
	($1981/MMBTU)			($1981/KWH)	(INDEX)		($1981/GAL)	(INDEX)		(INDEX)	($1981/GAL)
1981	5.00	4.55	3.94	.0642	.0616	.0451	1.2050	100.00	100.00	100.00	.4800
1982	5.56	5.11	4.50	.0669	.0642	.0470	1.1027	91.51	91.51	103.00	.5050
1983	5.69	5.24	4.63	.0665	.0638	.0466	.9828	81.49	81.49	106.09	.5312
1984	5.63	5.18	4.57	.0684	.0657	.0480	.9538	79.15	79.15	109.27	.5588
1985	5.47	5.02	4.41	.0712	.0683	.0500	.9376	77.81	77.81	112.55	.5879
1986	5.48	5.03	4.42	.0734	.0705	.0515	.9442	78.36	78.36	115.93	.6185
1987	5.71	5.26	4.65	.0747	.0717	.0524	.9508	78.91	78.91	119.41	.6506
1988	6.12	5.67	5.06	.0737	.0708	.0517	.9575	79.46	79.46	122.99	.6845
1989	6.57	6.12	5.51	.0733	.0703	.0514	.9642	80.01	80.01	126.68	.7201
1990	6.90	6.45	5.84	.0732	.0703	.0514	.9709	80.58	80.58	130.48	.7575
1991	7.06	6.61	6.00	.0741	.0711	.0520	.9826	81.54	81.54	134.39	.7969
1992	7.05	6.60	5.99	.0747	.0717	.0524	.9944	82.52	82.52	138.42	.8383
1993	7.00	6.55	5.94	.0741	.0712	.0520	1.0063	83.51	83.51	142.58	.8819
1994	7.08	6.63	6.02	.0737	.0707	.0517	1.0184	84.51	84.51	146.85	.9278
1995	7.22	6.77	6.16	.0711	.0682	.0499	1.0306	85.53	85.53	151.26	.9760
1996	7.45	7.00	6.39	.0710	.0681	.0498	1.0512	87.24	87.24	155.80	1.0268
1997	7.68	7.23	6.62	.0708	.0680	.0497	1.0722	88.98	88.98	160.47	1.0802
1998	7.91	7.46	6.85	.0706	.0678	.0496	1.0937	90.76	90.76	165.28	1.1363
1999	8.18	7.73	7.12	.0701	.0673	.0492	1.1156	92.58	92.58	170.24	1.1954
2000	8.47	8.02	7.41	.0694	.0666	.0487	1.1379	94.43	94.43	175.35	1.2576

ANNUAL RATES OF GROWTH

1981-1985	2.27%	2.49%	2.86%	2.62%	2.62%	2.62%	-6.08%	-6.08%	-6.08%	3.00%	5.20%
1985-1990	4.75%	5.14%	5.78%	.57%	.56%	.56%	.70%	.70%	.70%	3.00%	5.20%
1990-1995	.91%	.97%	1.07%	-.59%	-.59%	-.59%	1.20%	1.20%	1.20%	3.00%	5.20%
1995-2000	3.25%	3.45%	3.76%	-.48%	-.48%	-.48%	2.00%	2.00%	2.00%	3.00%	5.20%
1981-2000	2.81%	3.03%	3.38%	.41%	.41%	.41%	-.30%	-.30%	-.30%	3.00%	5.20%

#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

MD.-D.C. (REGION=Middle Atlantic)

VALUE ADDED INDEXES BY 2-DIGIT SIC

YEAR	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1981	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1982	.99	.89	.91	.93	.88	1.01	.90	.85	.65	.82	.81	.95	.95	.92
1983	1.01	.93	.94	.97	.92	1.02	.95	.88	.69	.85	.86	1.00	.98	.98
1984	1.04	.97	.97	1.01	.95	1.04	1.00	.92	.73	.89	.91	1.05	1.01	1.04
1985	1.07	1.01	1.01	1.05	.99	1.05	1.06	.96	.77	.92	.96	1.10	1.04	1.10
1986	1.10	1.06	1.05	1.10	1.05	1.05	1.13	1.01	.81	.96	1.02	1.18	1.09	1.14
1987	1.12	1.11	1.09	1.15	1.11	1.05	1.20	1.07	.84	1.00	1.08	1.26	1.14	1.17
1988	1.15	1.17	1.13	1.20	1.18	1.05	1.28	1.14	.87	1.04	1.15	1.34	1.19	1.21
1989	1.18	1.23	1.17	1.26	1.25	1.05	1.36	1.21	.91	1.08	1.22	1.43	1.24	1.25
1990	1.21	1.29	1.22	1.32	1.32	1.05	1.45	1.28	.94	1.12	1.29	1.53	1.30	1.29
1991	1.24	1.34	1.26	1.36	1.38	1.05	1.54	1.33	.98	1.15	1.35	1.60	1.33	1.33
1992	1.27	1.40	1.30	1.41	1.43	1.05	1.64	1.39	1.01	1.19	1.41	1.67	1.36	1.36
1993	1.31	1.46	1.34	1.46	1.49	1.05	1.75	1.45	1.05	1.22	1.47	1.75	1.39	1.40
1994	1.34	1.52	1.38	1.50	1.54	1.05	1.86	1.51	1.09	1.25	1.54	1.83	1.42	1.44
1995	1.38	1.59	1.43	1.56	1.60	1.04	1.98	1.57	1.12	1.29	1.61	1.91	1.45	1.48
1996	1.41	1.66	1.47	1.61	1.67	1.04	2.08	1.62	1.16	1.32	1.68	2.00	1.48	1.52
1997	1.45	1.73	1.52	1.66	1.74	1.04	2.18	1.68	1.21	1.36	1.76	2.09	1.51	1.56
1998	1.49	1.80	1.57	1.72	1.81	1.04	2.28	1.73	1.25	1.40	1.84	2.18	1.55	1.60
1999	1.53	1.88	1.62	1.78	1.88	1.04	2.39	1.79	1.29	1.44	1.92	2.28	1.58	1.65
2000	1.56	1.96	1.67	1.84	1.96	1.03	2.51	1.85	1.34	1.48	2.00	2.38	1.62	1.70

ANNUAL RATES OF GROWTH

1981-1985	1.71%	.25%	.25%	1.23%	-.25%	1.23%	1.47%	-1.02%	-6.33%	-2.06%	-1.02%	2.41%	.99%	2.41%
1985-1990	2.49%	5.02%	3.85%	4.68%	5.92%	.00%	6.47%	5.92%	4.07%	4.01%	6.09%	6.82%	4.56%	3.24%
1990-1995	2.66%	4.27%	3.23%	3.40%	3.92%	-.19%	6.43%	4.17%	3.57%	2.87%	4.53%	4.54%	2.21%	2.79%
1995-2000	2.48%	4.27%	3.15%	3.36%	4.14%	-.19%	4.86%	3.34%	3.65%	2.79%	4.43%	4.50%	2.24%	2.81%
1981-2000	2.37%	3.61%	2.74%	3.26%	3.61%	.16%	4.96%	3.29%	1.55%	2.08%	3.72%	4.67%	2.57%	2.83%

#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

MD.-D.C. (REGION=Middle Atlantic)

WAGE INDEXES BY 2-DIGIT SIC

YEAR	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1981	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1982	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
1983	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
1984	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
1985	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08
1986	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
1987	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13
1988	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15
1989	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17
1990	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
1991	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22
1992	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24
1993	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27
1994	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29
1995	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32
1996	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35
1997	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37
1998	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40
1999	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43
2000	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46

ANNUAL RATES OF GROWTH

1981-1985	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1985-1990	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1990-1995	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1995-2000	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1981-2000	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%

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#37 -- ADDABBO - HEINZ SCENARIO                                                    FRI, MAY 13, 1983,  3:37 PM

MASS.     (REGION=New England          )

                                              DEMOGRAPHIC DATA
                                              ----------------

                                                                    --RATIO OF TOTAL COMMERCIAL ACTIVITY--
                         HOUSE-  PERSONAL                    URBAN  -------------------------------------- NON-MFG/
    YEAR    PEOPLE      HOLDS    INCOME INCOME/HH     APTS    RATIO    MINING  AGRICULT    TRANSP CONSTRUCT TOT EARN
  --------  --------  --------  -------- --------  --------  --------  --------  --------  --------  --------  --------
                               ($000,000) ($1981/HH) ---------------------------(RATIOS)----------------------------------
    1981   5742163   2060853     64248    31175     .2019    1.0000     .0007     .0055     .0849     .0829     .7520
    1982   5747331   2089096     63284    30293     .2049    1.0000     .0007     .0054     .0846     .0822     .7551
    1983   5752504   2117707     65183    30780     .2079    1.0000     .0006     .0052     .0843     .0816     .7582
    1984   5757681   2146720     68051    31700     .2109    1.0000     .0006     .0050     .0840     .0810     .7612
    1985   5762863   2176129     70773    32522     .2141    1.0000     .0006     .0049     .0837     .0804     .7642
    1986   5783033   2202461     73108    33194     .2172    1.0000     .0006     .0047     .0834     .0798     .7672
    1987   5803274   2229110     75521    33879     .2204    1.0000     .0006     .0045     .0832     .0792     .7701
    1988   5823585   2256082     78013    34579     .2236    1.0000     .0006     .0044     .0829     .0787     .7730
    1989   5843967   2283380     80588    35293     .2270    1.0000     .0006     .0043     .0826     .0781     .7759
    1990   5864421   2311010     83247    36022     .2304    1.0000     .0006     .0041     .0824     .0775     .7787
    1991   5886705   2335960     85578    36635     .2337    1.0000     .0006     .0039     .0822     .0769     .7815
    1992   5909074   2361196     87974    37258     .2372    1.0000     .0006     .0037     .0820     .0763     .7843
    1993   5931528   2386696     90437    37892     .2408    1.0000     .0006     .0036     .0818     .0757     .7872
    1994   5954067   2412472     92970    38537     .2444    1.0000     .0006     .0034     .0816     .0751     .7900
    1995   5976692   2438527     95573    39193     .2480    1.0000     .0006     .0032     .0814     .0746     .7929
    1996   5999403   2464863     98249    39860     .2517    1.0000     .0006     .0031     .0812     .0740     .7957
    1997   6022200   2491483    101000    40538     .2553    1.0000     .0006     .0029     .0810     .0734     .7986
    1998   6045084   2518391    103828    41228     .2591    1.0000     .0006     .0028     .0808     .0729     .8015
    1999   6068055   2545580    106735    41929     .2631    1.0000     .0006     .0027     .0806     .0723     .8044
    2000   6091113   2573080    109724    42643     .2669    1.0000     .0006     .0025     .0804     .0717     .8073


ANNUAL RATES OF GROWTH
----------------------

1981-1985       .09%      1.37%      2.45%      1.06%      1.48%       .00%    -3.70%    -2.05%      -.36%      -.76%       .40%
1985-1990       .35%      1.21%      3.30%      2.07%      1.48%       .00%      .00%    -3.50%      -.31%      -.73%       .38%
1990-1995       .38%      1.08%      2.80%      1.70%      1.48%       .00%      .00%    -4.84%      -.24%      -.76%       .36%
1995-2000       .38%      1.08%      2.80%      1.70%      1.48%       .00%      .00%    -4.82%      -.25%      -.79%       .36%

1981-2000       .31%      1.18%      2.86%      1.66%      1.48%       .00%     -.81%    -4.06%      -.29%      -.76%       .37%
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837 -- ADDABBO - HEINZ SCENARIO                                               FRI, MAY 13, 1983,  3:37 PM

MASS.    (REGION=New England          )

                                             ENERGY PRICES
                                             -------------

                       GAS                            ELECTRIC                        PETROLEUM
            ---------------------------  ---------------------------  ---------------------------
   YEAR     RESIDENT   COMMERC   INDUSTR  RESIDENT   COMMERC   INDUSTR  RESIDENT   COMMERC   INDUSTR      COAL       LPG
 --------   --------  --------  --------  --------  --------  --------  --------  --------  --------  --------  --------
            -------( $1981/MMBTU)-------($1981/KWH) ----( INDEX)------($1981/GAL) -----( INDEX)-----  ( INDEX)($1981/GAL)

   1981       6.22      5.66      4.73     .0890     .0867     .0705    1.2050    100.00    100.00    100.00     .4800
   1982       6.78      6.22      5.29     .0940     .0916     .0745    1.1027     91.51     91.51    103.00     .5050
   1983       6.91      6.35      5.42     .0950     .0925     .0752     .9820     81.49     81.49    106.09     .5312
   1984       6.85      6.29      5.36     .0973     .0948     .0770     .9538     79.15     79.15    109.27     .5588
   1985       6.69      6.13      5.20     .1038     .1011     .0822     .9376     77.81     77.81    112.55     .5879
   1986       6.70      6.14      5.21     .1025     .0998     .0811     .9442     78.36     78.36    115.93     .6185
   1987       6.93      6.37      5.44     .1118     .1089     .0885     .9508     78.91     78.91    119.41     .6506
   1988       7.34      6.78      5.85     .1077     .1049     .0853     .9575     79.46     79.46    122.99     .6845
   1989       7.79      7.23      6.30     .1048     .1021     .0830     .9642     80.01     80.01    126.68     .7201
   1990       8.12      7.56      6.63     .1041     .1014     .0824     .9709     80.58     80.58    130.48     .7575
   1991       8.28      7.72      6.79     .1049     .1022     .0831     .9826     81.54     81.54    134.39     .7969
   1992       8.27      7.71      6.78     .1027     .1000     .0813     .9944     82.52     82.52    138.42     .8383
   1993       8.22      7.66      6.73     .0997     .0971     .0789    1.0063     83.51     83.51    142.58     .8819
   1994       8.30      7.74      6.81     .0970     .0945     .0768    1.0184     84.51     84.51    146.85     .9278
   1995       8.44      7.88      6.95     .0927     .0903     .0734    1.0306     85.53     85.53    151.26     .9760
   1996       8.67      8.11      7.18     .0907     .0884     .0719    1.0512     87.24     87.24    155.80    1.0268
   1997       8.90      8.34      7.41     .0890     .0867     .0705    1.0722     88.98     88.98    160.47    1.0802
   1998       9.13      8.57      7.64     .0888     .0865     .0703    1.0937     90.76     90.76    165.28    1.1363
   1999       9.40      8.84      7.91     .0870     .0848     .0689    1.1156     92.58     92.58    170.24    1.1954
   2000       9.69      9.13      8.20     .0860     .0837     .0680    1.1379     94.43     94.43    175.35    1.2576


 ANNUAL RATES OF GROWTH
 ----------------------

 1981-1985    1.84%     2.01%     2.40%     3.91%     3.91%     3.91%    -6.08%    -6.08%    -6.08%     3.00%     5.20%
 1985-1990    3.95%     4.20%     4.90%      .06%      .06%      .06%      .70%      .70%      .70%     3.00%     5.20%
 1990-1995     .78%      .83%      .95%    -2.29%    -2.29%    -2.29%     1.20%     1.20%     1.20%     3.00%     5.20%
 1995-2000    2.80%     2.99%     3.36%    -1.50%    -1.50%    -1.50%     2.00%     2.00%     2.00%     3.00%     5.20%

 1981-2000    2.36%     2.55%     2.94%     -.18%     -.18%     -.18%     -.30%     -.30%     -.30%     3.00%     5.20%
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837 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

MASS. (REGION=New England)

VALUE ADDED INDEXES BY 2-DIGIT SIC

YEAR	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1981	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1982	.99	.89	.91	.93	.88	1.01	.90	.85	.65	.82	.81	.95	.95	.92
1983	1.01	.93	.94	.97	.92	1.02	.95	.88	.69	.85	.86	1.00	.98	.98
1984	1.04	.97	.97	1.01	.95	1.04	1.00	.92	.73	.89	.91	1.05	1.01	1.04
1985	1.07	1.01	1.01	1.05	.99	1.05	1.06	.96	.77	.92	.96	1.10	1.04	1.10
1986	1.10	1.06	1.05	1.10	1.05	1.05	1.13	1.01	.81	.96	1.02	1.18	1.09	1.14
1987	1.12	1.11	1.09	1.15	1.11	1.05	1.20	1.07	.84	1.00	1.08	1.26	1.14	1.17
1988	1.15	1.17	1.13	1.20	1.18	1.05	1.28	1.14	.87	1.04	1.15	1.34	1.19	1.21
1989	1.18	1.23	1.17	1.26	1.25	1.05	1.36	1.21	.91	1.08	1.22	1.43	1.24	1.25
1990	1.21	1.29	1.22	1.32	1.32	1.05	1.45	1.28	.94	1.12	1.29	1.53	1.30	1.29
1991	1.24	1.34	1.26	1.36	1.38	1.05	1.54	1.33	.98	1.15	1.35	1.60	1.33	1.33
1992	1.27	1.40	1.30	1.41	1.43	1.05	1.64	1.39	1.01	1.19	1.41	1.67	1.36	1.36
1993	1.31	1.46	1.34	1.46	1.49	1.05	1.75	1.45	1.05	1.22	1.47	1.75	1.39	1.40
1994	1.34	1.52	1.38	1.50	1.54	1.05	1.86	1.51	1.09	1.25	1.54	1.83	1.42	1.44
1995	1.38	1.59	1.43	1.56	1.60	1.04	1.98	1.57	1.12	1.29	1.61	1.91	1.45	1.48
1996	1.41	1.66	1.47	1.61	1.67	1.04	2.08	1.62	1.16	1.32	1.68	2.00	1.48	1.52
1997	1.45	1.73	1.52	1.66	1.74	1.04	2.18	1.68	1.21	1.36	1.76	2.09	1.51	1.56
1998	1.49	1.80	1.57	1.72	1.81	1.04	2.28	1.73	1.25	1.40	1.84	2.18	1.55	1.60
1999	1.53	1.88	1.62	1.78	1.88	1.04	2.39	1.79	1.29	1.44	1.92	2.28	1.58	1.65
2000	1.56	1.96	1.67	1.84	1.96	1.03	2.51	1.85	1.34	1.48	2.00	2.38	1.62	1.70

ANNUAL RATES OF GROWTH

1981-1985	1.71%	.25%	.25%	1.23%	-.25%	1.23%	1.47%	-1.02%	-6.33%	-2.06%	-1.02%	2.41%	.99%	2.41%
1985-1990	2.49%	5.02%	3.85%	4.68%	5.92%	.00%	6.47%	5.92%	4.07%	4.01%	6.09%	6.82%	4.56%	3.24%
1990-1995	2.66%	4.27%	3.23%	3.40%	3.92%	-.19%	6.43%	4.17%	3.57%	2.87%	4.53%	4.54%	2.21%	2.79%
1995-2000	2.48%	4.27%	3.15%	3.36%	4.14%	-.19%	4.86%	3.34%	3.65%	2.79%	4.43%	4.58%	2.24%	2.81%
1981-2000	2.37%	3.61%	2.74%	3.26%	3.61%	.16%	4.96%	3.29%	1.55%	2.08%	3.72%	4.67%	2.57%	2.83%

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#37 -- ADDABBO - HEINZ SCENARIO                                                          FRI, MAY 13, 1983,  3:37 PM

MASS.    (REGION=New England        )

                                          WAGE INDEXES BY 2-DIGIT SIC
                                          ---------------------------

                                                                                      PRIMARY  FABRIC.           ELECTRIC
YEAR      FOOD   TEXTILE   LUMBER    PAPER CHEMICAL   PETROL   RUBBER    STONE    METAL    METAL  MACHINE  MACHINE    TRANSP    OTHER
----   -------   -------  -------  ------- -------   -------  -------  -------  -------  -------  -------  -------   -------  -------
1981      1.00      1.00     1.00     1.00    1.00      1.00     1.00     1.00     1.00     1.00     1.00     1.00      1.00     1.00
1982      1.02      1.02     1.02     1.02    1.02      1.02     1.02     1.02     1.02     1.02     1.02     1.02      1.02     1.02
1983      1.04      1.04     1.04     1.04    1.04      1.04     1.04     1.04     1.04     1.04     1.04     1.04      1.04     1.04
1984      1.06      1.06     1.06     1.06    1.06      1.06     1.06     1.06     1.06     1.06     1.06     1.06      1.06     1.06
1985      1.08      1.08     1.08     1.08    1.08      1.08     1.08     1.08     1.08     1.08     1.08     1.08      1.08     1.08
1986      1.10      1.10     1.10     1.10    1.10      1.10     1.10     1.10     1.10     1.10     1.10     1.10      1.10     1.10
1987      1.13      1.13     1.13     1.13    1.13      1.13     1.13     1.13     1.13     1.13     1.13     1.13      1.13     1.13
1988      1.15      1.15     1.15     1.15    1.15      1.15     1.15     1.15     1.15     1.15     1.15     1.15      1.15     1.15
1989      1.17      1.17     1.17     1.17    1.17      1.17     1.17     1.17     1.17     1.17     1.17     1.17      1.17     1.17
1990      1.20      1.20     1.20     1.20    1.20      1.20     1.20     1.20     1.20     1.20     1.20     1.20      1.20     1.20
1991      1.22      1.22     1.22     1.22    1.22      1.22     1.22     1.22     1.22     1.22     1.22     1.22      1.22     1.22
1992      1.24      1.24     1.24     1.24    1.24      1.24     1.24     1.24     1.24     1.24     1.24     1.24      1.24     1.24
1993      1.27      1.27     1.27     1.27    1.27      1.27     1.27     1.27     1.27     1.27     1.27     1.27      1.27     1.27
1994      1.29      1.29     1.29     1.29    1.29      1.29     1.29     1.29     1.29     1.29     1.29     1.29      1.29     1.29
1995      1.32      1.32     1.32     1.32    1.32      1.32     1.32     1.32     1.32     1.32     1.32     1.32      1.32     1.32
1996      1.35      1.35     1.35     1.35    1.35      1.35     1.35     1.35     1.35     1.35     1.35     1.35      1.35     1.35
1997      1.37      1.37     1.37     1.37    1.37      1.37     1.37     1.37     1.37     1.37     1.37     1.37      1.37     1.37
1998      1.40      1.40     1.40     1.40    1.40      1.40     1.40     1.40     1.40     1.40     1.40     1.40      1.40     1.40
1999      1.43      1.43     1.43     1.43    1.43      1.43     1.43     1.43     1.43     1.43     1.43     1.43      1.43     1.43
2000      1.46      1.46     1.46     1.46    1.46      1.46     1.46     1.46     1.46     1.46     1.46     1.46      1.46     1.46


ANNUAL RATES OF GROWTH
----------------------

1981-1985 2.00%     2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%
1985-1990 2.00%     2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%
1990-1995 2.00%     2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%
1995-2000 2.00%     2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%

1981-2000 2.00%     2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%
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#37 -- ADDABBO - HEINZ SCENARIO                                                    FRI, MAY 13, 1983,  3:37 PM

MICHIGAN (REGION=Midwest              )

                                                    DEMOGRAPHIC DATA
                                                    ----------------

                                                                          --RATIO OF TOTAL COMMERCIAL ACTIVITY--
                      HOUSE-  PERSONAL                           URBAN  ---------------------------------------- NON-MFG/
    YEAR    PEOPLE     HOLDS    INCOME INCOME/HH      APTS       RATIO    MINING  AGRICULT    TRANSP CONSTRUCT  TOT EARN
--------  --------  --------  -------- ---------  --------    --------  --------  --------  --------  --------  --------
                             ($000,000)($1981/HH) ------------------------------(RATIOS)-------------------------------
    1981   9310850   3254108     99314     30520     .1222      1.0000     .0048     .0136     .0873     .0924     .5970
    1982   9362990   3314310     97824     29516     .1240      1.0000     .0047     .0131     .0871     .0919     .6005
    1983   9415422   3375625    100759     29849     .1259      1.0000     .0046     .0127     .0868     .0914     .6031
    1984   9468148   3438074    105192     30596     .1277      1.0000     .0045     .0123     .0865     .0909     .6057
    1985   9521170   3501679    109400     31242     .1296      1.0000     .0043     .0119     .0863     .0904     .6083
    1986   9587018   3556305    113010     31777     .1315      1.0000     .0042     .0115     .0860     .0899     .6108
    1987   9654932   3611784    116740     32322     .1335      1.0000     .0041     .0111     .0858     .0895     .6134
    1988   9722516   3668127    120592     32876     .1355      1.0000     .0040     .0108     .0855     .0890     .6159
    1989   9790574   3725350    124572     33439     .1374      1.0000     .0039     .0104     .0853     .0885     .6184
    1990   9859108   3783465    128682     34012     .1394      1.0000     .0038     .0101     .0851     .0880     .6209
    1991   9917276   3832272    132286     34519     .1414      1.0000     .0037     .0098     .0849     .0875     .6234
    1992   9975786   3881708    135990     35033     .1436      1.0000     .0036     .0095     .0847     .0870     .6259
    1993  10034642   3931783    139797     35556     .1457      1.0000     .0035     .0093     .0845     .0865     .6285
    1994  10093846   3982503    143712     36086     .1479      1.0000     .0034     .0090     .0843     .0860     .6310
    1995  10153398   4033870    147736     36624     .1500      1.0000     .0033     .0087     .0841     .0855     .6336
    1996  10213302   4085916    151872     37170     .1523      1.0000     .0033     .0085     .0839     .0851     .6361
    1997  10273560   4138625    156125     37724     .1545      1.0000     .0032     .0082     .0837     .0846     .6387
    1998  10334174   4192014    160496     38286     .1568      1.0000     .0031     .0080     .0835     .0841     .6413
    1999  10395144   4246091    164990     38857     .1590      1.0000     .0030     .0078     .0833     .0836     .6439
    2000  10456474   4300866    169610     39436     .1614      1.0000     .0029     .0075     .0831     .0832     .6465


ANNUAL RATES OF GROWTH
----------------------

1981-1985        .56%     1.85%     2.45%      .59%     1.48%        .00%    -2.71%    -3.28%     -.29%     -.55%      .44%
1985-1990        .70%     1.56%     3.30%     1.71%     1.47%        .00%    -2.44%    -3.23%     -.28%     -.54%      .41%
1990-1995        .59%     1.29%     2.80%     1.49%     1.48%        .00%    -2.78%    -2.94%     -.24%     -.57%      .41%
1995-2000        .59%     1.29%     2.80%     1.49%     1.48%        .00%    -2.55%    -2.92%     -.24%     -.54%      .40%

1981-2000        .61%     1.48%     2.86%     1.36%     1.48%        .00%    -2.62%    -3.08%     -.26%     -.55%      .41%
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#37 -- ADDABBO - HEINZ SCENARIO                                                   FRI, MAY 13, 1983,  3:37 PM

MICHIGAN (REGION=Midwest            )

                                            ENERGY PRICES
                                            -------------

                        GAS                          ELECTRIC                        PETROLEUM
            ----------------------------  ----------------------------  ----------------------------
    YEAR    RESIDENT  COMMERC   INDUSTR   RESIDENT  COMMERC   INDUSTR   RESIDENT  COMMERC   INDUSTR      COAL       LPG
--------    --------  --------  --------  --------  --------  --------  --------  --------  --------   --------  --------
            -------( $1981/MMBTU)-------($1981/KWH) ----( INDEX)------($1981/GAL) -----( INDEX)-----   ( INDEX)($1981/GAL)

    1981      3.78      3.74      3.49     .0624     .0610     .0417    1.2050    100.00    100.00     100.00     .4800
    1982      4.34      4.30      4.05     .0671     .0655     .0440    1.1027     91.51     91.51     103.00     .5050
    1983      4.47      4.43      4.18     .0680     .0664     .0454     .9820     81.49     81.49     106.09     .5312
    1984      4.41      4.37      4.12     .0721     .0704     .0482     .9538     79.15     79.15     109.27     .5588
    1985      4.25      4.21      3.96     .0760     .0742     .0508     .9376     77.81     77.81     112.55     .5879
    1986      4.26      4.22      3.97     .0769     .0751     .0514     .9442     78.36     78.36     115.93     .6185
    1987      4.49      4.45      4.20     .0788     .0770     .0527     .9508     78.91     78.91     119.41     .6506
    1988      4.90      4.86      4.61     .0780     .0762     .0521     .9575     79.46     79.46     122.99     .6845
    1989      5.35      5.31      5.06     .0785     .0766     .0524     .9642     80.01     80.01     126.68     .7201
    1990      5.68      5.64      5.39     .0769     .0751     .0514     .9709     80.58     80.58     130.48     .7575
    1991      5.84      5.80      5.55     .0775     .0757     .0518     .9826     81.54     81.54     134.39     .7969
    1992      5.83      5.79      5.54     .0795     .0776     .0531     .9944     82.52     82.52     138.42     .8383
    1993      5.78      5.74      5.49     .0743     .0726     .0497    1.0063     83.51     83.51     142.58     .8819
    1994      5.86      5.82      5.57     .0800     .0781     .0534    1.0184     84.51     84.51     146.85     .9278
    1995      6.00      5.96      5.71     .0724     .0706     .0483    1.0306     85.53     85.53     151.26     .9760
    1996      6.23      6.19      5.94     .0777     .0758     .0519    1.0512     87.24     87.24     155.80    1.0268
    1997      6.46      6.42      6.17     .0727     .0710     .0486    1.0722     88.98     88.98     160.47    1.0802
    1998      6.69      6.65      6.40     .0775     .0757     .0518    1.0937     90.76     90.76     165.28    1.1363
    1999      6.96      6.92      6.67     .0723     .0706     .0483    1.1156     92.58     92.58     170.24    1.1954
    2000      7.25      7.21      6.96     .0761     .0743     .0508    1.1379     94.43     94.43     175.35    1.2576


ANNUAL RATES OF GROWTH
----------------------

1981-1985     2.97%     3.00%     3.21%     5.04%     5.04%     5.04%    -6.08%    -6.08%    -6.08%      3.00%     5.20%
1985-1990     5.97%     6.02%     6.36%      .23%      .23%      .23%      .70%      .70%      .70%      3.00%     5.20%
1990-1995     1.10%     1.11%     1.16%    -1.20%    -1.21%    -1.20%     1.20%     1.20%     1.20%      3.00%     5.20%
1995-2000     3.86%     3.88%     4.04%     1.00%     1.00%     1.00%     2.00%     2.00%     2.00%      3.00%     5.20%

1981-2000     3.49%     3.52%     3.70%     1.04%     1.04%     1.04%     -.30%     -.30%     -.30%      3.00%     5.20%
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#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

MICHIGAN (REGION=Midwest)

VALUE ADDED INDEXES BY 2-DIGIT SIC

YEAR	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1981	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1982	.99	.89	.91	.93	.88	1.01	.90	.85	.65	.82	.81	.95	.95	.92
1983	1.01	.93	.94	.97	.92	1.02	.95	.88	.69	.85	.86	1.00	.98	.98
1984	1.04	.97	.97	1.01	.95	1.04	1.00	.92	.73	.89	.91	1.05	1.01	1.04
1985	1.07	1.01	1.01	1.05	.99	1.05	1.06	.96	.77	.92	.96	1.10	1.04	1.10
1986	1.10	1.06	1.05	1.10	1.05	1.05	1.13	1.01	.81	.96	1.02	1.18	1.09	1.14
1987	1.12	1.11	1.09	1.15	1.11	1.05	1.20	1.07	.84	1.00	1.08	1.26	1.14	1.17
1988	1.15	1.17	1.13	1.20	1.18	1.05	1.28	1.14	.87	1.04	1.15	1.34	1.19	1.21
1989	1.18	1.23	1.17	1.26	1.25	1.05	1.36	1.21	.91	1.08	1.22	1.43	1.24	1.25
1990	1.21	1.29	1.22	1.32	1.32	1.05	1.45	1.28	.94	1.12	1.29	1.53	1.30	1.29
1991	1.24	1.34	1.26	1.36	1.38	1.05	1.54	1.33	.98	1.15	1.35	1.60	1.33	1.33
1992	1.27	1.40	1.30	1.41	1.43	1.05	1.64	1.39	1.01	1.19	1.41	1.67	1.36	1.36
1993	1.31	1.46	1.34	1.46	1.49	1.05	1.75	1.45	1.05	1.22	1.47	1.75	1.39	1.40
1994	1.34	1.52	1.38	1.50	1.54	1.05	1.86	1.51	1.09	1.25	1.54	1.83	1.42	1.44
1995	1.38	1.59	1.43	1.56	1.60	1.04	1.98	1.57	1.12	1.29	1.61	1.91	1.45	1.48
1996	1.41	1.66	1.47	1.61	1.67	1.04	2.08	1.62	1.16	1.32	1.68	2.00	1.48	1.52
1997	1.45	1.73	1.52	1.66	1.74	1.04	2.18	1.68	1.21	1.36	1.76	2.09	1.51	1.56
1998	1.49	1.80	1.57	1.72	1.81	1.04	2.28	1.73	1.25	1.40	1.84	2.18	1.55	1.60
1999	1.53	1.88	1.62	1.78	1.88	1.04	2.39	1.79	1.29	1.44	1.92	2.28	1.58	1.65
2000	1.56	1.96	1.67	1.84	1.96	1.03	2.51	1.85	1.34	1.48	2.00	2.38	1.62	1.70

ANNUAL RATES OF GROWTH

1981-1985	1.71%	.25%	.25%	1.23%	-.25%	1.23%	1.47%	-1.02%	-6.33%	-2.06%	-1.02%	2.41%	.99%	2.41%
1985-1990	2.49%	5.02%	3.85%	4.68%	5.92%	.00%	6.47%	5.92%	4.07%	4.01%	6.09%	6.82%	4.56%	3.24%
1990-1995	2.66%	4.27%	3.23%	3.40%	3.92%	-.19%	6.43%	4.17%	3.57%	2.87%	4.53%	4.54%	2.21%	2.79%
1995-2000	2.48%	4.27%	3.15%	3.36%	4.14%	-.19%	4.86%	3.34%	3.65%	2.79%	4.43%	4.50%	2.24%	2.81%
1981-2000	2.37%	3.61%	2.74%	3.26%	3.61%	.16%	4.96%	3.29%	1.55%	2.08%	3.72%	4.67%	2.57%	2.83%

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037 -- ADDABBO - HEINZ SCENARIO                                                    FRI, MAY 13, 1983,  3:37 PM

MICHIGAN (REGION=Midwest            )

                                         WAGE INDEXES BY 2-DIGIT SIC
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                                                                                  PRIMARY  FABRIC.            ELECTRIC
YEAR      FOOD  TEXTILE   LUMBER     PAPER CHEMICAL   PETROL   RUBBER    STONE    METAL    METAL  MACHINE  MACHINE    TRANSP    OTHER
----   -------  -------  -------   ------- -------   -------  -------  -------  -------  -------  -------  -------   -------  -------
1981      1.00     1.00     1.00      1.00     1.00     1.00     1.00     1.00     1.00     1.00     1.00     1.00      1.00     1.00
1982      1.02     1.02     1.02      1.02     1.02     1.02     1.02     1.02     1.02     1.02     1.02     1.02      1.02     1.02
1983      1.04     1.04     1.04      1.04     1.04     1.04     1.04     1.04     1.04     1.04     1.04     1.04      1.04     1.04
1984      1.06     1.06     1.06      1.06     1.06     1.06     1.06     1.06     1.06     1.06     1.06     1.06      1.06     1.06
1985      1.08     1.08     1.08      1.08     1.08     1.08     1.08     1.08     1.08     1.08     1.08     1.08      1.08     1.08
1986      1.10     1.10     1.10      1.10     1.10     1.10     1.10     1.10     1.10     1.10     1.10     1.10      1.10     1.10
1987      1.13     1.13     1.13      1.13     1.13     1.13     1.13     1.13     1.13     1.13     1.13     1.13      1.13     1.13
1988      1.15     1.15     1.15      1.15     1.15     1.15     1.15     1.15     1.15     1.15     1.15     1.15      1.15     1.15
1989      1.17     1.17     1.17      1.17     1.17     1.17     1.17     1.17     1.17     1.17     1.17     1.17      1.17     1.17
1990      1.20     1.20     1.20      1.20     1.20     1.20     1.20     1.20     1.20     1.20     1.20     1.20      1.20     1.20
1991      1.22     1.22     1.22      1.22     1.22     1.22     1.22     1.22     1.22     1.22     1.22     1.22      1.22     1.22
1992      1.24     1.24     1.24      1.24     1.24     1.24     1.24     1.24     1.24     1.24     1.24     1.24      1.24     1.24
1993      1.27     1.27     1.27      1.27     1.27     1.27     1.27     1.27     1.27     1.27     1.27     1.27      1.27     1.27
1994      1.29     1.29     1.29      1.29     1.29     1.29     1.29     1.29     1.29     1.29     1.29     1.29      1.29     1.29
1995      1.32     1.32     1.32      1.32     1.32     1.32     1.32     1.32     1.32     1.32     1.32     1.32      1.32     1.32
1996      1.35     1.35     1.35      1.35     1.35     1.35     1.35     1.35     1.35     1.35     1.35     1.35      1.35     1.35
1997      1.37     1.37     1.37      1.37     1.37     1.37     1.37     1.37     1.37     1.37     1.37     1.37      1.37     1.37
1998      1.40     1.40     1.40      1.40     1.40     1.40     1.40     1.40     1.40     1.40     1.40     1.40      1.40     1.40
1999      1.43     1.43     1.43      1.43     1.43     1.43     1.43     1.43     1.43     1.43     1.43     1.43      1.43     1.43
2000      1.46     1.46     1.46      1.46     1.46     1.46     1.46     1.46     1.46     1.46     1.46     1.46      1.46     1.46


ANNUAL RATES OF GROWTH
----------------------

1981-1985 2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%
1985-1990 2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%
1990-1995 2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%
1995-2000 2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%

1981-2000 2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%
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837 -- ADDABBO - HEINZ SCENARIO                                                                  FRI, MAY 13, 1983,  3:37 PM

MINN.    (REGION=Midwest              )

                                                      DEMOGRAPHIC DATA
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                                                                                 --RATIO OF TOTAL COMMERCIAL ACTIVITY--
                            HOUSE-   PERSONAL                           URBAN    --------------------------------------   NON-MFG/
    YEAR      PEOPLE       HOLDS      INCOME  INCOME/HH       APTS      RATIO     MINING  AGRICULT     TRANSP CONSTRUCT   TOT EARN
--------    --------    --------    --------   --------   --------   --------   --------  --------   --------  --------   --------
                                 ($000,000) ($1981/HH) ---------------------------(RATIOS)------------------------------------
    1981     4118586     1479403       44087      29801      .1780     1.0000      .0122     .0617      .0920     .0911      .7557
    1982     4160595     1513577       43426      28691      .1807     1.0000      .0119     .0601      .0916     .0907      .7565
    1983     4203033     1548540       44720      28884      .1833     1.0000      .0115     .0585      .0912     .0903      .7573
    1984     4245904     1584312       46697      29474      .1861     1.0000      .0112     .0570      .0908     .0899      .7581
    1985     4289212     1620909       48564      29961      .1888     1.0000      .0109     .0555      .0905     .0895      .7589
    1986     4342827     1655273       50167      30307      .1915     1.0000      .0106     .0541      .0901     .0891      .7596
    1987     4397113     1690365       51823      30658      .1944     1.0000      .0103     .0527      .0897     .0887      .7604
    1988     4452077     1726199       53533      31012      .1972     1.0000      .0100     .0513      .0894     .0883      .7612
    1989     4507728     1762795       55299      31370      .2002     1.0000      .0098     .0500      .0890     .0880      .7620
    1990     4564075     1800166       57124      31733      .2031     1.0000      .0095     .0487      .0886     .0876      .7627
    1991     4609260     1830589       58724      32079      .2061     1.0000      .0092     .0474      .0882     .0872      .7634
    1992     4654892     1861525       60368      32429      .2092     1.0000      .0089     .0462      .0878     .0868      .7641
    1993     4700976     1892985       62058      32783      .2123     1.0000      .0087     .0450      .0874     .0864      .7648
    1994     4747516     1924977       63796      33141      .2155     1.0000      .0084     .0438      .0870     .0860      .7655
    1995     4794517     1957510       65582      33503      .2187     1.0000      .0081     .0427      .0866     .0856      .7662
    1996     4841983     1990592       67418      33869      .2219     1.0000      .0079     .0416      .0862     .0852      .7669
    1997     4889919     2024232       69306      34238      .2252     1.0000      .0076     .0405      .0858     .0849      .7676
    1998     4938330     2058442       71247      34612      .2285     1.0000      .0074     .0394      .0855     .0845      .7683
    1999     4987220     2093230       73242      34990      .2318     1.0000      .0072     .0384      .0851     .0841      .7690
    2000     5036594     2128606       75292      35372      .2353     1.0000      .0070     .0374      .0847     .0837      .7697


ANNUAL RATES OF GROWTH
----------------------

1981-1985        1.02%       2.31%       2.45%       .13%      1.48%       .00%     -2.70%    -2.61%      -.41%     -.44%       .11%
1985-1990        1.25%       2.12%       3.30%      1.16%      1.47%       .00%     -2.71%    -2.58%      -.42%     -.43%       .10%
1990-1995         .99%       1.69%       2.80%      1.09%      1.49%       .00%     -3.14%    -2.60%      -.46%     -.46%       .09%
1995-2000         .99%       1.69%       2.80%      1.09%      1.47%       .00%     -2.88%    -2.62%      -.44%     -.45%       .09%

1981-2000        1.06%       1.93%       2.86%       .91%      1.48%       .00%     -2.88%    -2.60%      -.43%     -.44%       .10%
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#37 -- ADDABBO - HEINZ SCENARIO                                                              FRI, MAY 13, 1983,  3:37 PM
MINN.     (REGION=Midwest            )

                                              ENERGY PRICES
                                              -------------

                          GAS                           ELECTRIC                       PETROLEUM
             ----------------------------  ----------------------------  ----------------------------
    YEAR     RESIDENT  COMMERC   INDUSTR   RESIDENT  COMMERC   INDUSTR   RESIDENT  COMMERC   INDUSTR      COAL       LPG
  --------   --------  --------  --------  --------  --------  --------  --------  --------  --------   --------  --------
             -------( $1981/MMBTU )-------($1981/KWH) ----( INDEX )------($1981/GAL ) -----( INDEX )-----  ( INDEX )($1981/GAL )

     1981      4.09      3.81      3.10     .0624     .0610     .0417    1.2050    100.00    100.00     100.00     .4800
     1982      4.65      4.37      3.66     .0671     .0655     .0448    1.1027     91.51     91.51     103.00     .5050
     1983      4.70      4.50      3.79     .0680     .0664     .0454     .9820     81.49     81.49     106.09     .5312
     1984      4.72      4.44      3.73     .0721     .0704     .0482     .9538     79.15     79.15     109.27     .5588
     1985      4.56      4.28      3.57     .0760     .0742     .0508     .9376     77.81     77.81     112.55     .5879
     1986      4.57      4.29      3.58     .0769     .0751     .0514     .9442     78.36     78.36     115.93     .6185
     1987      4.88      4.52      3.81     .0788     .0770     .0527     .9508     78.91     78.91     119.41     .6506
     1988      5.21      4.93      4.22     .0780     .0762     .0521     .9575     79.46     79.46     122.99     .6845
     1989      5.66      5.30      4.67     .0785     .0766     .0524     .9642     80.01     80.01     126.68     .7201
     1990      5.99      5.71      5.00     .0769     .0751     .0514     .9709     80.58     80.58     130.48     .7575
     1991      6.15      5.87      5.16     .0775     .0757     .0518     .9826     81.54     81.54     134.39     .7969
     1992      6.14      5.86      5.15     .0795     .0776     .0531     .9944     82.52     82.52     138.42     .8383
     1993      6.09      5.81      5.10     .0743     .0726     .0497    1.0063     83.51     83.51     142.58     .8819
     1994      6.17      5.89      5.18     .0800     .0781     .0534    1.0184     84.51     84.51     146.85     .9278
     1995      6.31      6.03      5.32     .0724     .0706     .0483    1.0306     85.53     85.53     151.26     .9760
     1996      6.54      6.26      5.55     .0777     .0758     .0519    1.0512     87.24     87.24     155.80    1.0268
     1997      6.77      6.49      5.78     .0727     .0710     .0486    1.0722     88.98     88.98     160.47    1.0802
     1998      7.00      6.72      6.01     .0775     .0757     .0518    1.0937     90.76     90.76     165.28    1.1363
     1999      7.27      6.99      6.28     .0723     .0706     .0483    1.1156     92.58     92.58     170.24    1.1954
     2000      7.56      7.28      6.57     .0761     .0743     .0508    1.1379     94.43     94.43     175.35    1.2576


ANNUAL RATES OF GROWTH
----------------------

1981-1985      2.76%     2.95%     3.59%     5.04%     5.04%     5.04%    -6.08%    -6.08%    -6.08%      3.00%     5.20%
1985-1990      5.61%     5.93%     6.97%      .23%      .23%      .23%      .70%      .70%      .70%      3.00%     5.20%
1990-1995      1.05%     1.10%     1.25%    -1.20%    -1.20%    -1.20%     1.20%     1.20%     1.20%      3.00%     5.20%
1995-2000      3.68%     3.84%     4.31%     1.00%     1.00%     1.00%     2.00%     2.00%     2.00%      3.00%     5.20%

1981-2000      3.29%     3.47%     4.03%     1.04%     1.04%     1.04%     -.30%     -.30%     -.30%      3.00%     5.20%
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#37 -- ADDABBO - HEINZ SCENARIO                                                       FRI, MAY 13, 1983,  3:37 PM

MINN.    (REGION=Midwest            )

                                              VALUE ADDED INDEXES BY 2-DIGIT SIC
                                              ----------------------------------

                                                                              PRIMARY   FABRIC.            ELECTRIC
YEAR       FOOD  TEXTILE   LUMBER     PAPER CHEMICAL   PETROL   RUBBER    STONE    METAL    METAL  MACHINE  MACHINE   TRANSP    OTHER
----    -------  -------  -------   -------  -------  -------  -------  -------  -------  -------  -------  -------  -------  -------
1981       1.00     1.00     1.00      1.00     1.00     1.00     1.00     1.00     1.00     1.00     1.00     1.00     1.00     1.00
1982        .99      .89      .91       .93      .88     1.01      .90      .85      .65      .82      .81      .95      .95      .92
1983       1.01      .93      .94       .97      .92     1.02      .95      .88      .69      .85      .86     1.00      .98      .98
1984       1.04      .97      .97      1.01      .95     1.04     1.00      .92      .73      .89      .91     1.05     1.01     1.04
1985       1.07     1.01     1.01      1.05      .99     1.05     1.06      .96      .77      .92      .96     1.10     1.04     1.10
1986       1.10     1.06     1.05      1.10     1.05     1.05     1.13     1.01      .81      .96     1.02     1.18     1.09     1.14
1987       1.12     1.11     1.09      1.15     1.11     1.05     1.20     1.07      .84     1.00     1.08     1.26     1.14     1.17
1988       1.15     1.17     1.13      1.20     1.18     1.05     1.28     1.14      .87     1.04     1.15     1.34     1.19     1.21
1989       1.18     1.23     1.17      1.26     1.25     1.05     1.36     1.21      .91     1.08     1.22     1.43     1.24     1.25
1990       1.21     1.29     1.22      1.32     1.32     1.05     1.45     1.28      .94     1.12     1.29     1.53     1.30     1.29
1991       1.24     1.34     1.26      1.36     1.38     1.05     1.54     1.33      .98     1.15     1.35     1.60     1.33     1.33
1992       1.27     1.40     1.30      1.41     1.43     1.05     1.64     1.39     1.01     1.19     1.41     1.67     1.36     1.36
1993       1.31     1.46     1.34      1.46     1.49     1.05     1.75     1.45     1.05     1.22     1.47     1.75     1.39     1.40
1994       1.34     1.52     1.38      1.50     1.54     1.05     1.86     1.51     1.09     1.25     1.54     1.83     1.42     1.44
1995       1.38     1.59     1.43      1.56     1.60     1.04     1.98     1.57     1.12     1.29     1.61     1.91     1.45     1.48
1996       1.41     1.66     1.47      1.61     1.67     1.04     2.00     1.62     1.16     1.32     1.68     2.00     1.48     1.52
1997       1.45     1.73     1.52      1.66     1.74     1.04     2.10     1.68     1.21     1.36     1.76     2.09     1.51     1.56
1998       1.49     1.80     1.57      1.72     1.81     1.04     2.28     1.73     1.25     1.40     1.84     2.18     1.55     1.60
1999       1.53     1.88     1.62      1.78     1.88     1.04     2.39     1.79     1.29     1.44     1.92     2.28     1.58     1.65
2000       1.56     1.96     1.67      1.84     1.96     1.03     2.51     1.85     1.34     1.48     2.00     2.38     1.62     1.70


ANNUAL RATES OF GROWTH
----------------------

1981-1985 1.71%     .25%     .25%     1.23%    -.25%    1.23%    1.47%   -1.02%   -6.33%   -2.06%   -1.02%    2.41%     .99%    2.41%
1985-1990 2.49%    5.02%    3.85%     4.68%    5.92%     .00%    6.47%    5.92%    4.07%    4.01%    6.09%    6.82%    4.56%    3.24%
1990-1995 2.66%    4.[illegible]7%    3.23%     3.40%    3.92%    -.19%    6.43%    4.17%    3.57%    2.87%    4.53%    4.54%    2.21%    2.79%
1995-2000 2.48%    4.[illegible]7%    3.15%     3.36%    4.14%    -.19%    4.86%    3.34%    3.65%    2.79%    4.43%    4.50%    2.24%    2.81%

1981-2000 2.37%    3.61%    2.74%     3.26%    3.61%     .16%    4.96%    3.29%    1.55%    2.08%    3.72%    4.67%    2.57%    2.83%
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#37 -- ADDABBO - HEINZ SCENARIO                                                      FRI, MAY 13, 1983,  3:37 PM

MINN.     (REGION=Midwest             )

                                       WAGE INDEXES BY 2-DIGIT SIC
                                       ---------------------------

                                                                               PRIMARY  FABRIC.          ELECTRIC
YEAR     FOOD  TEXTILE   LUMBER    PAPER CHEMICAL   PETROL   RUBBER    STONE    METAL    METAL  MACHINE  MACHINE   TRANSP    OTHER
----  -------  -------  -------  ------- -------  -------  -------  -------  -------  -------  -------  -------  -------  -------
1981     1.00     1.00     1.00     1.00    1.00     1.00     1.00     1.00     1.00     1.00     1.00     1.00     1.00     1.00
1982     1.02     1.02     1.02     1.02    1.02     1.02     1.02     1.02     1.02     1.02     1.02     1.02     1.02     1.02
1983     1.04     1.04     1.04     1.04    1.04     1.04     1.04     1.04     1.04     1.04     1.04     1.04     1.04     1.04
1984     1.06     1.06     1.06     1.06    1.06     1.06     1.06     1.06     1.06     1.06     1.06     1.06     1.06     1.06
1985     1.08     1.08     1.08     1.08    1.08     1.08     1.08     1.08     1.08     1.08     1.08     1.08     1.08     1.08
1986     1.10     1.10     1.10     1.10    1.10     1.10     1.10     1.10     1.10     1.10     1.10     1.10     1.10     1.10
1987     1.13     1.13     1.13     1.13    1.13     1.13     1.13     1.13     1.13     1.13     1.13     1.13     1.13     1.13
1988     1.15     1.15     1.15     1.15    1.15     1.15     1.15     1.15     1.15     1.15     1.15     1.15     1.15     1.15
1989     1.17     1.17     1.17     1.17    1.17     1.17     1.17     1.17     1.17     1.17     1.17     1.17     1.17     1.17
1990     1.20     1.20     1.20     1.20    1.20     1.20     1.20     1.20     1.20     1.20     1.20     1.20     1.20     1.20
1991     1.22     1.22     1.22     1.22    1.22     1.22     1.22     1.22     1.22     1.22     1.22     1.22     1.22     1.22
1992     1.24     1.24     1.24     1.24    1.24     1.24     1.24     1.24     1.24     1.24     1.24     1.24     1.24     1.24
1993     1.27     1.27     1.27     1.27    1.27     1.27     1.27     1.27     1.27     1.27     1.27     1.27     1.27     1.27
1994     1.29     1.29     1.29     1.29    1.29     1.29     1.29     1.29     1.29     1.29     1.29     1.29     1.29     1.29
1995     1.32     1.32     1.32     1.32    1.32     1.32     1.32     1.32     1.32     1.32     1.32     1.32     1.32     1.32
1996     1.35     1.35     1.35     1.35    1.35     1.35     1.35     1.35     1.35     1.35     1.35     1.35     1.35     1.35
1997     1.37     1.37     1.37     1.37    1.37     1.37     1.37     1.37     1.37     1.37     1.37     1.37     1.37     1.37
1998     1.40     1.40     1.40     1.40    1.40     1.40     1.40     1.40     1.40     1.40     1.40     1.40     1.40     1.40
1999     1.43     1.43     1.43     1.43    1.43     1.43     1.43     1.43     1.43     1.43     1.43     1.43     1.43     1.43
2000     1.46     1.46     1.46     1.46    1.46     1.46     1.46     1.46     1.46     1.46     1.46     1.46     1.46     1.46


ANNUAL RATES OF GROWTH
----------------------

1981-1985 2.00%     2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%
1985-1990 2.00%     2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%
1990-1995 2.00%     2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%
1995-2000 2.00%     2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%

1981-2000 2.00%     2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%
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#37 -- ADDABBO - HEINZ SCENARIO                                                            FRI, MAY 13, 1983,  3:37 PM

MISS.    (REGION=South Atlantic        )

                                                  DEMOGRAPHIC DATA
                                                  ----------------

                                                                         --RATIO OF TOTAL COMMERCIAL ACTIVITY--
                                  HOUSE-  PERSONAL                         URBAN  ------------------------------------  NON-MFG/
    YEAR    PEOPLE     HOLDS    INCOME INCOME/HH      APTS     RATIO    MINING  AGRICULT     TRANSP CONSTRUCT  TOT EARN
  --------  --------  --------  --------  --------  --------  --------  --------  --------  --------  --------  --------
                              ($000,000) ($1981/HH) ---------------------------(RATIOS)------------------------------
      1981   2542420    845029     18749     22187     .0898    1.0000     .0122     .1296     .0787     .0737     .7158
      1982   2565056    863451     18460     21380     .0910    1.0000     .0119     .1263     .0788     .0736     .7150
      1983   2587885    882274     19022     21560     .0923    1.0000     .0116     .1230     .0790     .0735     .7143
      1984   2610917    901507     19859     22028     .0937    1.0000     .0114     .1199     .0791     .0734     .7136
      1985   2634154    921160     20653     22421     .0952    1.0000     .0111     .1168     .0792     .0733     .7128
      1986   2664710    939860     21335     22700     .0965    1.0000     .0108     .1138     .0793     .0733     .7121
      1987   2695621    958939     22039     22982     .0979    1.0000     .0106     .1109     .0794     .0732     .7114
      1988   2726890    978405     22766     23268     .0994    1.0000     .0103     .1080     .0795     .0731     .7106
      1989   2758522    998267     23517     23558     .1009    1.0000     .0101     .1052     .0796     .0730     .7099
      1990   2790521   1018532     24293     23851     .1024    1.0000     .0098     .1025     .0798     .0729     .7091
      1991   2817588   1035541     24974     24116     .1039    1.0000     .0095     .0999     .0800     .0728     .7083
      1992   2844919   1052035     25673     24384     .1054    1.0000     .0092     .0973     .0802     .0727     .7075
      1993   2872515   1070417     26392     24655     .1071    1.0000     .0090     .0948     .0804     .0726     .7067
      1994   2900380   1088294     27131     24929     .1087    1.0000     .0087     .0924     .0806     .0725     .7059
      1995   2928514   1106460     27890     25207     .1102    1.0000     .0084     .0900     .0808     .0724     .7051
      1996   2956921   1124946     28671     25487     .1119    1.0000     .0082     .0877     .0810     .0723     .7043
      1997   2985602   1143733     29474     25770     .1135    1.0000     .0079     .0854     .0812     .0722     .7035
      1998   3014563   1162833     30299     26056     .1154    1.0000     .0077     .0833     .0814     .0721     .7027
      1999   3043805   1182253     31148     26346     .1170    1.0000     .0075     .0811     .0816     .0720     .7019
      2000   3073331   1201597     32020     26639     .1188    1.0000     .0072     .0790     .0818     .0719     .7011


ANNUAL RATES OF GROWTH
----------------------

1981-1985         .89%     2.18%     2.45%      .26%     1.47%      .00%    -2.33%    -2.57%      .16%     -.14%     -.10%
1985-1990        1.16%     2.03%     3.30%     1.24%     1.47%      .00%    -2.46%    -2.58%      .15%     -.11%     -.10%
1990-1995         .97%     1.67%     2.80%     1.11%     1.48%      .00%    -3.04%    -2.57%      .25%     -.14%     -.11%
1995-2000         .97%     1.67%     2.80%     1.11%     1.51%      .00%    -3.04%    -2.57%      .25%     -.14%     -.11%

1981-2000        1.00%     1.87%     2.86%      .97%     1.48%      .00%    -2.74%    -2.57%      .20%     -.13%     -.11%
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#37 -- ADDABBO - HEINZ SCENARIO                                                             FRI, MAY 13, 1983,  3:37 PM

MISS.    (REGION=South Atlantic        )

                                                   ENERGY PRICES
                                                   -------------

                          GAS                            ELECTRIC                          PETROLEUM
             ----------------------------   ----------------------------   ----------------------------
   YEAR      RESIDENT   COMMERC    INDUSTR   RESIDENT   COMMERC    INDUSTR   RESIDENT   COMMERC    INDUSTR       COAL        LPG
 --------    --------   --------   --------  --------   --------   --------  --------   --------   --------    --------   --------
             -------( $1981/MMBTU)-------($1981/KWH) ----( INDEX)------($1981/GAL) -----( INDEX)-----  ( INDEX)($1981/GAL)

   1981        3.81       3.50       3.18     .0524      .0517      .0368    1.2050     100.00     100.00      100.00      .4800
   1982        4.37       4.06       3.74     .0598      .0590      .0420    1.1027      91.51      91.51      103.00      .5050
   1983        4.50       4.19       3.87     .0593      .0585      .0416     .9820      81.49      81.49      106.09      .5312
   1984        4.44       4.13       3.81     .0625      .0617      .0439     .9538      79.15      79.15      109.27      .5588
   1985        4.28       3.97       3.65     .0633      .0625      .0445     .9376      77.81      77.81      112.55      .5879
   1986        4.29       3.98       3.66     .0652      .0643      .0458     .9442      78.36      78.36      115.93      .6185
   1987        4.52       4.21       3.89     .0637      .0628      .0447     .9508      78.91      78.91      119.41      .6506
   1988        4.93       4.62       4.30     .0668      .0659      .0469     .9575      79.46      79.46      122.99      .6845
   1989        5.38       5.07       4.75     .0681      .0672      .0479     .9642      80.01      80.01      126.68      .7201
   1990        5.71       5.40       5.08     .0701      .0691      .0492     .9709      80.58      80.58      130.48      .7575
   1991        5.87       5.56       5.24     .0697      .0687      .0489     .9826      81.54      81.54      134.39      .7969
   1992        5.86       5.55       5.23     .0736      .0726      .0517     .9944      82.52      82.52      138.42      .8383
   1993        5.81       5.50       5.18     .0684      .0675      .0480    1.0063      83.51      83.51      142.58      .8819
   1994        5.89       5.58       5.26     .0749      .0739      .0526    1.0184      84.51      84.51      146.85      .9278
   1995        6.03       5.72       5.40     .0678      .0669      .0477    1.0306      85.53      85.53      151.26      .9760
   1996        6.26       5.95       5.63     .0740      .0730      .0520    1.0512      87.24      87.24      155.80     1.0268
   1997        6.49       6.18       5.86     .0688      .0679      .0484    1.0722      88.98      88.98      160.47     1.0802
   1998        6.72       6.41       6.09     .0745      .0735      .0524    1.0937      90.76      90.76      165.28     1.1363
   1999        6.99       6.68       6.36     .0691      .0681      .0485    1.1156      92.58      92.58      170.24     1.1954
   2000        7.28       6.97       6.65     .0735      .0725      .0517    1.1379      94.43      94.43      175.35     1.2576


ANNUAL RATES OF GROWTH
----------------------

1981-1985      2.95%      3.20%      3.51%     4.84%      4.83%      4.83%    -6.08%     -6.08%     -6.08%       3.00%      5.20%
1985-1990      5.93%      6.35%      6.84%     2.05%      2.05%      2.05%      .70%       .70%       .70%       3.00%      5.20%
1990-1995      1.10%      1.16%      1.23%     -.65%      -.65%      -.65%     1.20%      1.20%      1.20%       3.00%      5.20%
1995-2000      3.84%      4.03%      4.25%     1.62%      1.63%      1.62%     2.00%      2.00%      2.00%       3.00%      5.20%

1981-2000      3.47%      3.69%      3.96%     1.80%      1.80%      1.80%     -.30%      -.30%      -.30%       3.00%      5.20%
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037 -- ADDABBO - HEINZ SCENARIO                                                          FRI, MAY 13, 1983,  3:37 PM

MISS.    (REGION=South Atlantic       )

                                             VALUE ADDED INDEXES BY 2-DIGIT SIC
                                             ----------------------------------

                                                                               PRIMARY  FABRIC.           ELECTRIC
YEAR       FOOD  TEXTILE    LUMBER     PAPER CHEMICAL    PETROL    RUBBER     STONE    METAL    METAL  MACHINE  MACHINE    TRANSP     OTHER
----    -------  -------   -------   -------  -------   -------   -------   -------  -------  -------  -------  -------   -------   -------
1981       1.00     1.00      1.00      1.00     1.00      1.00      1.00      1.00     1.00     1.00     1.00     1.00      1.00      1.00
1982        .99      .89       .91       .93      .88      1.01       .90       .85      .65      .82      .81      .95       .95       .92
1983       1.01      .93       .94       .97      .92      1.02       .95       .88      .69      .85      .86     1.00       .98       .98
1984       1.04      .97       .97      1.01      .95      1.04      1.00       .92      .73      .89      .91     1.05      1.01      1.04
1985       1.07     1.01      1.01      1.05      .99      1.05      1.06       .96      .77      .92      .96     1.10      1.04      1.10
1986       1.10     1.06      1.05      1.10     1.05      1.05      1.13      1.01      .81      .96     1.02     1.18      1.09      1.14
1987       1.12     1.11      1.09      1.15     1.11      1.05      1.20      1.07      .84     1.00     1.08     1.26      1.14      1.17
1988       1.15     1.17      1.13      1.20     1.18      1.05      1.28      1.14      .87     1.04     1.15     1.34      1.19      1.21
1989       1.18     1.23      1.17      1.26     1.25      1.05      1.36      1.21      .91     1.08     1.22     1.43      1.24      1.25
1990       1.21     1.29      1.22      1.32     1.32      1.05      1.45      1.28      .94     1.12     1.29     1.53      1.30      1.29
1991       1.24     1.34      1.26      1.36     1.38      1.05      1.54      1.33      .98     1.15     1.35     1.60      1.33      1.33
1992       1.27     1.40      1.30      1.41     1.43      1.05      1.64      1.39     1.01     1.19     1.41     1.67      1.36      1.36
1993       1.31     1.46      1.34      1.46     1.49      1.05      1.75      1.45     1.05     1.22     1.47     1.75      1.39      1.40
1994       1.34     1.52      1.38      1.50     1.54      1.05      1.86      1.51     1.09     1.25     1.54     1.83      1.42      1.44
1995       1.38     1.59      1.43      1.56     1.60      1.04      1.98      1.57     1.12     1.29     1.61     1.91      1.45      1.48
1996       1.41     1.66      1.47      1.61     1.67      1.04      2.08      1.62     1.16     1.32     1.68     2.00      1.48      1.52
1997       1.45     1.73      1.52      1.66     1.74      1.04      2.18      1.68     1.21     1.36     1.76     2.09      1.51      1.56
1998       1.49     1.80      1.57      1.72     1.81      1.04      2.28      1.73     1.25     1.40     1.84     2.18      1.55      1.60
1999       1.53     1.88      1.62      1.78     1.88      1.04      2.39      1.79     1.29     1.44     1.92     2.28      1.58      1.65
2000       1.56     1.96      1.67      1.84     1.96      1.03      2.51      1.85     1.34     1.48     2.00     2.38      1.62      1.70


ANNUAL RATES OF GROWTH
----------------------

1981-1985 1.71%     .25%      .25%     1.23%     -.25%     1.23%     1.47%   -1.02%   -6.33%   -2.06%   -1.02%    2.41%      .99%     2.41%
1985-1990 2.49%    5.02%     3.85%     4.68%     5.92%      .00%     6.47%    5.92%    4.07%    4.01%    6.09%    6.82%     4.56%     3.24%
1990-1995 2.66%    4.27%     3.23%     3.40%     3.92%     -.19%     6.43%    4.17%    3.57%    2.87%    4.53%    4.54%     2.21%     2.79%
1995-2000 2.48%    4.27%     3.15%     3.36%     4.14%     -.19%     4.86%    3.34%    3.65%    2.79%    4.43%    4.58%     2.24%     2.81%

1981-2000 2.37%    3.61%     2.74%     3.26%     3.61%      .16%     4.96%    3.29%    1.55%    2.08%    3.72%    4.67%     2.57%     2.83%
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837 -- ADDABBO - HEINZ SCENARIO                                                    FRI, MAY 13, 1983,  3:37 PM

MISS.    (REGION=South Atlantic      )

                                          WAGE INDEXES BY 2-DIGIT SIC
                                          ---------------------------

                                                                                 PRIMARY   FABRIC.            ELECTRIC
 YEAR      FOOD  TEXTILE   LUMBER    PAPER CHEMICAL   PETROL   RUBBER    STONE     METAL     METAL  MACHINE  MACHINE   TRANSP    OTHER
 ----   -------  -------  -------  -------  -------  -------  -------  -------   -------   -------  -------  -------  -------  -------
 1981      1.00     1.00     1.00     1.00     1.00     1.00     1.00     1.00      1.00      1.00     1.00     1.00     1.00     1.00
 1982      1.02     1.02     1.02     1.02     1.02     1.02     1.02     1.02      1.02      1.02     1.02     1.02     1.02     1.02
 1983      1.04     1.04     1.04     1.04     1.04     1.04     1.04     1.04      1.04      1.04     1.04     1.04     1.04     1.04
 1984      1.06     1.06     1.06     1.06     1.06     1.06     1.06     1.06      1.06      1.06     1.06     1.06     1.06     1.06
 1985      1.08     1.08     1.08     1.08     1.08     1.08     1.08     1.08      1.08      1.08     1.08     1.08     1.08     1.08
 1986      1.10     1.10     1.10     1.10     1.10     1.10     1.10     1.10      1.10      1.10     1.10     1.10     1.10     1.10
 1987      1.13     1.13     1.13     1.13     1.13     1.13     1.13     1.13      1.13      1.13     1.13     1.13     1.13     1.13
 1988      1.15     1.15     1.15     1.15     1.15     1.15     1.15     1.15      1.15      1.15     1.15     1.15     1.15     1.15
 1989      1.17     1.17     1.17     1.17     1.17     1.17     1.17     1.17      1.17      1.17     1.17     1.17     1.17     1.17
 1990      1.20     1.20     1.20     1.20     1.20     1.20     1.20     1.20      1.20      1.20     1.20     1.20     1.20     1.20
 1991      1.22     1.22     1.22     1.22     1.22     1.22     1.22     1.22      1.22      1.22     1.22     1.22     1.22     1.22
 1992      1.24     1.24     1.24     1.24     1.24     1.24     1.24     1.24      1.24      1.24     1.24     1.24     1.24     1.24
 1993      1.27     1.27     1.27     1.27     1.27     1.27     1.27     1.27      1.27      1.27     1.27     1.27     1.27     1.27
 1994      1.29     1.29     1.29     1.29     1.29     1.29     1.29     1.29      1.29      1.29     1.29     1.29     1.29     1.29
 1995      1.32     1.32     1.32     1.32     1.32     1.32     1.32     1.32      1.32      1.32     1.32     1.32     1.32     1.32
 1996      1.35     1.35     1.35     1.35     1.35     1.35     1.35     1.35      1.35      1.35     1.35     1.35     1.35     1.35
 1997      1.37     1.37     1.37     1.37     1.37     1.37     1.37     1.37      1.37      1.37     1.37     1.37     1.37     1.37
 1998      1.40     1.40     1.40     1.40     1.40     1.40     1.40     1.40      1.40      1.40     1.40     1.40     1.40     1.40
 1999      1.43     1.43     1.43     1.43     1.43     1.43     1.43     1.43      1.43      1.43     1.43     1.43     1.43     1.43
 2000      1.46     1.46     1.46     1.46     1.46     1.46     1.46     1.46      1.46      1.46     1.46     1.46     1.46     1.46


ANNUAL RATES OF GROWTH
----------------------

1981-1985 2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%
1985-1990 2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%
1990-1995 2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%
1995-2000 2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%

1981-2000 2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%
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037 -- ADDABBO - HEINZ SCENARIO                                                                FRI, MAY 13, 1983,  3:37 PM

MISSOURI (REGION=Central            )

                                                   DEMOGRAPHIC DATA
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                                                                      --RATIO OF TOTAL COMMERCIAL ACTIVITY--
                         HOUSE-   PERSONAL                      URBAN  ------------------------------------- NON-MFG/
    YEAR     PEOPLE      HOLDS     INCOME INCOME/HH      APTS   RATIO   MINING  AGRICULT    TRANSP CONSTRUCT TOT EARN
--------   --------   --------   -------- --------  --------  --------  -------  --------  --------  --------  --------
                               ($000,000) ($1981/HH) --------------------------(RATIOS)----------------------------------
    1981    4937160    1824497      47682    26134     .1139   1.0000    .0066     .0453     .1141     .0036     .7279
    1982    4957403    1855514      46967    25312     .1155   1.0000    .0065     .0442     .1137     .0034     .7284
    1983    4977729    1887058      48376    25636     .1172   1.0000    .0064     .0430     .1132     .0031     .7290
    1984    4998138    1919138      50504    26316     .1190   1.0000    .0063     .0419     .1127     .0028     .7296
    1985    5018631    1951763      52524    26911     .1207   1.0000    .0062     .0409     .1122     .0025     .7301
    1986    5040713    1977136      54258    27443     .1225   1.0000    .0061     .0398     .1117     .0022     .7307
    1987    5062892    2002040      56048    27984     .1243   1.0000    .0059     .0388     .1112     .0020     .7312
    1988    5085169    2028076      57898    28537     .1262   1.0000    .0058     .0378     .1107     .0017     .7318
    1989    5107544    2055252      59809    29188     .1280   1.0000    .0057     .0369     .1103     .0014     .7323
    1990    5130017    2081970      61782    29675     .1299   1.0000    .0056     .0359     .1098     .0012     .7329
    1991    5148484    2104840      63512    30186     .1318   1.0000    .0055     .0349     .1093     .0010     .7335
    1992    5167010    2126343      65290    30706     .1337   1.0000    .0054     .0340     .1088     .0008     .7341
    1993    5185619    2148082      67119    31234     .1357   1.0000    .0053     .0331     .1083     .0006     .7347
    1994    5204207    2171661      68998    31772     .1376   1.0000    .0052     .0322     .1078     .0004     .7353
    1995    5223022    2194681      70930    32319     .1396   1.0000    .0051     .0313     .1073     .0002     .7359
    1996    5241824    2217945      72916    32875     .1417   1.0000    .0050     .0304     .1068     .0000     .7365
    1997    5260694    2241455      74958    33441     .1437   1.0000    .0049     .0296     .1064     .0798     .7371
    1998    5279632    2265215      77056    34017     .1458   1.0000    .0049     .0288     .1059     .0796     .7377
    1999    5298638    2289227      79214    34603     .1480   1.0000    .0048     .0280     .1054     .0794     .7383
    2000    5317712    2313493      81432    35199     .1501   1.0000    .0047     .0273     .1049     .0792     .7389


ANNUAL RATES OF GROWTH
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1981-1985        .41%      1.78%      2.45%      .74%     1.46%      .00%    -1.55%    -2.52%     -.42%     -.33%      .00%
1985-1990        .44%      1.30%      3.30%     1.97%     1.48%      .00%    -2.02%    -2.57%     -.43%     -.32%      .00%
1990-1995        .36%      1.06%      2.80%     1.72%     1.45%      .00%    -1.85%    -2.71%     -.46%     -.25%      .00%
1995-2000        .36%      1.06%      2.80%     1.72%     1.46%      .00%    -1.62%    -2.70%     -.45%     -.25%      .00%

1981-2000        .39%      1.26%      2.86%     1.58%     1.46%      .00%    -1.77%    -2.63%     -.44%     -.28%      .00%
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037 -- ADDABBO - HEINZ SCENARIO                                                              FRI, MAY 13, 1983,  3:37 PM

MISSOURI (REGION=Central            )

                                                    ENERGY PRICES
                                                    -------------

                      GAS                             ELECTRIC                             PETROLEUM
           -----------------------------   -----------------------------   -----------------------------
   YEAR    RESIDENT   COMMERC   INDUSTR    RESIDENT   COMMERC   INDUSTR    RESIDENT   COMMERC   INDUSTR       COAL      LPG
 --------  --------  --------  --------    --------  --------  --------    --------  --------  --------    --------  --------
           -------( $1981/MMBTU)-------($1981/KWH) ----( INDEX)------($1981/GAL) -----( INDEX)-----    ( INDEX)($1981/GAL)

   1981      3.78      3.39      3.01       .0611     .0575     .0418      1.2050    100.00    100.00      100.00     .4800
   1982      4.34      3.95      3.57       .0686     .0644     .0468      1.1027     91.51     91.51      103.00     .5050
   1983      4.47      4.08      3.70       .0679     .0638     .0464       .9820     81.49     81.49      106.09     .5312
   1984      4.41      4.02      3.64       .0691     .0650     .0472       .9538     79.15     79.15      109.27     .5588
   1985      4.25      3.86      3.48       .0829     .0779     .0566       .9376     77.81     77.81      112.55     .5879
   1986      4.26      3.87      3.49       .0805     .0757     .0550       .9442     78.36     78.36      115.93     .6185
   1987      4.49      4.10      3.72       .0787     .0740     .0537       .9508     78.91     78.91      119.41     .6506
   1988      4.90      4.51      4.13       .0770     .0724     .0526       .9575     79.46     79.46      122.99     .6845
   1989      5.35      4.96      4.58       .0765     .0719     .0523       .9642     80.01     80.01      126.68     .7201
   1990      5.68      5.29      4.91       .0755     .0710     .0516       .9709     80.58     80.58      130.48     .7575
   1991      5.84      5.45      5.07       .0784     .0737     .0536       .9826     81.54     81.54      134.39     .7969
   1992      5.83      5.44      5.06       .0778     .0731     .0531       .9944     82.52     82.52      138.42     .8383
   1993      5.78      5.39      5.01       .0766     .0721     .0523      1.0063     83.51     83.51      142.58     .8819
   1994      5.86      5.47      5.09       .0755     .0710     .0516      1.0184     84.51     84.51      146.85     .9278
   1995      6.00      5.61      5.23       .0723     .0680     .0494      1.0306     85.53     85.53      151.26     .9760
   1996      6.23      5.84      5.46       .0713     .0670     .0487      1.0512     87.24     87.24      155.80    1.0268
   1997      6.46      6.07      5.69       .0702     .0660     .0480      1.0722     88.98     88.98      160.47    1.0802
   1998      6.69      6.30      5.92       .0692     .0651     .0473      1.0937     90.76     90.76      165.28    1.1363
   1999      6.96      6.57      6.19       .0678     .0638     .0463      1.1156     92.58     92.58      170.24    1.1954
   2000      7.25      6.86      6.48       .0664     .0624     .0454      1.1379     94.43     94.43      175.35    1.2576


ANNUAL RATES OF GROWTH
----------------------

1981-1985    2.97%     3.30%     3.69%      7.91%     7.90%     7.91%     -6.08%    -6.08%    -6.08%       3.00%     5.20%
1985-1990    5.97%     6.51%     7.13%     -1.85%    -1.85%    -1.85%       .70%      .70%      .70%       3.00%     5.20%
1990-1995    1.10%     1.18%     1.27%      -.86%     -.87%     -.86%      1.20%     1.20%     1.20%       3.00%     5.20%
1995-2000    3.86%     4.11%     4.38%     -1.68%    -1.68%    -1.68%      2.00%     2.00%     2.00%       3.00%     5.20%

1981-2000    3.49%     3.78%     4.12%       .44%      .44%      .44%      -.30%     -.30%     -.30%       3.00%     5.20%
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037 -- ADDABBO - HEINZ SCENARIO

FRI, MAY 13, 1983, 3:37 PM

MISSOURI (REGION=Central)

VALUE ADDED INDEXES BY 2-DIGIT SIC

YEAR	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1981	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1982	.99	.89	.91	.93	.88	1.01	.90	.85	.65	.82	.81	.95	.95	.92
1983	1.01	.93	.94	.97	.92	1.02	.95	.88	.69	.85	.86	1.00	.98	.98
1984	1.04	.97	.97	1.01	.95	1.04	1.00	.92	.73	.89	.91	1.05	1.01	1.04
1985	1.07	1.01	1.01	1.05	.99	1.05	1.06	.96	.77	.92	.96	1.10	1.04	1.10
1986	1.10	1.06	1.05	1.10	1.05	1.05	1.13	1.01	.81	.96	1.02	1.18	1.09	1.14
1987	1.12	1.11	1.09	1.15	1.11	1.05	1.20	1.07	.84	1.00	1.08	1.26	1.14	1.17
1988	1.15	1.17	1.13	1.20	1.18	1.05	1.28	1.14	.87	1.04	1.15	1.34	1.19	1.21
1989	1.18	1.23	1.17	1.26	1.25	1.05	1.36	1.21	.91	1.08	1.22	1.43	1.24	1.25
1990	1.21	1.29	1.22	1.32	1.32	1.05	1.45	1.28	.94	1.12	1.29	1.53	1.30	1.29
1991	1.24	1.34	1.26	1.36	1.38	1.05	1.54	1.33	.98	1.15	1.35	1.60	1.33	1.33
1992	1.27	1.40	1.30	1.41	1.43	1.05	1.64	1.39	1.01	1.19	1.41	1.67	1.36	1.36
1993	1.31	1.46	1.34	1.46	1.49	1.05	1.75	1.45	1.05	1.22	1.47	1.75	1.39	1.40
1994	1.34	1.52	1.38	1.50	1.54	1.05	1.86	1.51	1.09	1.25	1.54	1.83	1.42	1.44
1995	1.38	1.59	1.43	1.56	1.60	1.04	1.98	1.57	1.12	1.29	1.61	1.91	1.45	1.48
1996	1.41	1.66	1.47	1.61	1.67	1.04	2.08	1.62	1.16	1.32	1.68	2.00	1.48	1.52
1997	1.45	1.73	1.52	1.66	1.74	1.04	2.18	1.68	1.21	1.36	1.76	2.09	1.51	1.56
1998	1.49	1.80	1.57	1.72	1.81	1.04	2.28	1.73	1.25	1.40	1.84	2.18	1.55	1.60
1999	1.53	1.88	1.62	1.78	1.88	1.04	2.39	1.79	1.29	1.44	1.92	2.28	1.58	1.65
2000	1.56	1.96	1.67	1.84	1.96	1.03	2.51	1.85	1.34	1.48	2.00	2.38	1.62	1.70

ANNUAL RATES OF GROWTH

1981-1985	1.71%	.25%	.25%	1.23%	-.25%	1.23%	1.47%	-1.02%	-6.33%	-2.06%	-1.02%	2.41%	.99%	2.41%
1985-1990	2.49%	5.02%	3.85%	4.60%	5.92%	.00%	6.47%	5.92%	4.07%	4.01%	6.09%	6.02%	4.56%	3.24%
1990-1995	2.66%	4.27%	3.23%	3.40%	3.92%	-.19%	6.43%	4.17%	3.57%	2.87%	4.53%	4.54%	2.21%	2.79%
1995-2000	2.48%	4.27%	3.15%	3.36%	4.14%	-.19%	4.86%	3.34%	3.65%	2.79%	4.43%	4.50%	2.24%	2.81%
1981-2000	2.37%	3.61%	2.74%	3.26%	3.61%	.16%	4.96%	3.29%	1.55%	2.08%	3.72%	4.67%	2.57%	2.83%

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#37 -- ADDABBO - HEINZ SCENARIO                                                                  FRI, MAY 13, 1983,  3:37 PM

MISSOURI (REGION=Central            )

                                              WAGE INDEXES BY 2-DIGIT SIC
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                                                                              PRIMARY   FABRIC.             ELECTRIC
YEAR       FOOD  TEXTILE   LUMBER     PAPER CHEMICAL    PETROL   RUBBER     STONE     METAL     METAL   MACHINE   MACHINE    TRANSP     OTHER
----    -------  -------  -------   ------- -------   -------  -------   -------   -------   -------   -------   -------   -------   -------
1981       1.00     1.00     1.00      1.00     1.00      1.00     1.00      1.00      1.00      1.00      1.00      1.00      1.00      1.00
1982       1.02     1.02     1.02      1.02     1.02      1.02     1.02      1.02      1.02      1.02      1.02      1.02      1.02      1.02
1983       1.04     1.04     1.04      1.04     1.04      1.04     1.04      1.04      1.04      1.04      1.04      1.04      1.04      1.04
1984       1.06     1.06     1.06      1.06     1.06      1.06     1.06      1.06      1.06      1.06      1.06      1.06      1.06      1.06
1985       1.08     1.08     1.08      1.08     1.08      1.08     1.08      1.08      1.08      1.08      1.08      1.08      1.08      1.08
1986       1.10     1.10     1.10      1.10     1.10      1.10     1.10      1.10      1.10      1.10      1.10      1.10      1.10      1.10
1987       1.13     1.13     1.13      1.13     1.13      1.13     1.13      1.13      1.13      1.13      1.13      1.13      1.13      1.13
1988       1.15     1.15     1.15      1.15     1.15      1.15     1.15      1.15      1.15      1.15      1.15      1.15      1.15      1.15
1989       1.17     1.17     1.17      1.17     1.17      1.17     1.17      1.17      1.17      1.17      1.17      1.17      1.17      1.17
1990       1.20     1.20     1.20      1.20     1.20      1.20     1.20      1.20      1.20      1.20      1.20      1.20      1.20      1.20
1991       1.22     1.22     1.22      1.22     1.22      1.22     1.22      1.22      1.22      1.22      1.22      1.22      1.22      1.22
1992       1.24     1.24     1.24      1.24     1.24      1.24     1.24      1.24      1.24      1.24      1.24      1.24      1.24      1.24
1993       1.27     1.27     1.27      1.27     1.27      1.27     1.27      1.27      1.27      1.27      1.27      1.27      1.27      1.27
1994       1.29     1.29     1.29      1.29     1.29      1.29     1.29      1.29      1.29      1.29      1.29      1.29      1.29      1.29
1995       1.32     1.32     1.32      1.32     1.32      1.32     1.32      1.32      1.32      1.32      1.32      1.32      1.32      1.32
1996       1.35     1.35     1.35      1.35     1.35      1.35     1.35      1.35      1.35      1.35      1.35      1.35      1.35      1.35
1997       1.37     1.37     1.37      1.37     1.37      1.37     1.37      1.37      1.37      1.37      1.37      1.37      1.37      1.37
1998       1.40     1.40     1.40      1.40     1.40      1.40     1.40      1.40      1.40      1.40      1.40      1.40      1.40      1.40
1999       1.43     1.43     1.43      1.43     1.43      1.43     1.43      1.43      1.43      1.43      1.43      1.43      1.43      1.43
2000       1.46     1.46     1.46      1.46     1.46      1.46     1.46      1.46      1.46      1.46      1.46      1.46      1.46      1.46


ANNUAL RATES OF GROWTH
----------------------

1981-1985 2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%
1985-1990 2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%
1990-1995 2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%
1995-2000 2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%

1981-2000 2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%
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037 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

MONTANA (REGION=North Central)

DEMOGRAPHIC DATA

							--RATIO OF TOTAL COMMERCIAL ACTIVITY--				
YEAR	PEOPLE	HOUSE-HOLDS	PERSONAL INCOME	INCOME/HH	APTS	URBAN RATIO	MINING	AGRICULT	TRANSP	CONSTRUCT	NON-MFG/ TOT EARN
			($000,000)	($1981/HH)	(RATIOS)						
1981	793139	289879	7458	25728	.1057	1.0000	.0286	.1300	.0926	.0735	.8887
1982	799325	295880	7346	24828	.1073	1.0000	.0282	.1274	.0920	.0733	.8888
1983	805560	302004	7567	25054	.1088	1.0000	.0277	.1249	.0914	.0731	.8889
1984	811844	308256	7899	25626	.1104	1.0000	.0272	.1224	.0907	.0729	.8890
1985	818176	314637	8215	26111	.1122	1.0000	.0268	.1200	.0901	.0727	.8891
1986	822840	319136	8487	26592	.1138	1.0000	.0263	.1177	.0895	.0725	.8892
1987	827530	323700	8767	27082	.1155	1.0000	.0259	.1153	.0889	.0723	.8893
1988	832247	328329	9056	27582	.1173	1.0000	.0254	.1131	.0883	.0720	.8894
1989	836991	333023	9355	28090	.1190	1.0000	.0250	.1108	.0877	.0718	.8895
1990	841762	337786	9663	28608	.1208	1.0000	.0246	.1086	.0871	.0716	.8897
1991	847234	342346	9934	29017	.1225	1.0000	.0242	.1064	.0865	.0714	.8899
1992	852741	346968	10212	29433	.1244	1.0000	.0238	.1043	.0859	.0712	.8901
1993	858283	351652	10498	29854	.1261	1.0000	.0234	.1023	.0853	.0710	.8903
1994	863862	356400	10792	30281	.1280	1.0000	.0231	.1002	.0847	.0708	.8905
1995	869477	361211	11094	30714	.1298	1.0000	.0227	.0982	.0842	.0706	.8907
1996	875129	366087	11405	31153	.1317	1.0000	.0223	.0963	.0836	.0704	.8909
1997	880817	371029	11724	31599	.1337	1.0000	.0220	.0944	.0830	.0702	.8911
1998	886542	376038	12052	32051	.1357	1.0000	.0216	.0925	.0824	.0700	.8913
1999	892305	381115	12390	32510	.1377	1.0000	.0213	.0907	.0819	.0698	.8915
2000	898105	386260	12737	32975	.1397	1.0000	.0209	.0889	.0813	.0696	.8917

ANNUAL RATES OF GROWTH

1981-1985	.78%	2.07%	2.45%	.37%	1.50%	.00%	-1.61%	-1.98%	-.68%	-.27%	.01%
1985-1990	.57%	1.43%	3.30%	1.84%	1.49%	.00%	-1.70%	-1.98%	-.67%	-.30%	.01%
1990-1995	.65%	1.35%	2.80%	1.43%	1.45%	.00%	-1.59%	-1.99%	-.67%	-.28%	.02%
1995-2000	.65%	1.35%	2.80%	1.43%	1.48%	.00%	-1.64%	-1.97%	-.70%	-.28%	.02%
1981-2000	.66%	1.52%	2.86%	1.31%	1.48%	.00%	-1.64%	-1.98%	-.68%	-.29%	.02%

#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

MONTANA (REGION=North Central)

ENERGY PRICES

	GAS			ELECTRIC			PETROLEUM				
YEAR	RESIDENT	COMMERC	INDUSTR	RESIDENT	COMMERC	INDUSTR	RESIDENT	COMMERC	INDUSTR	COAL	LPG
	($1981/MMBTU)			($1981/KWH)	(INDEX)		($1981/GAL)	(INDEX)		(INDEX)	($1981/GAL)
1981	3.94	3.94	3.66	.0602	.0554	.0306	1.2050	100.00	100.00	100.00	.4800
1982	4.50	4.50	4.22	.0691	.0635	.0351	1.1027	91.51	91.51	103.00	.5050
1983	4.63	4.63	4.35	.0685	.0629	.0348	.9820	81.49	81.49	106.09	.5312
1984	4.57	4.57	4.29	.0722	.0664	.0367	.9530	79.15	79.15	109.27	.5588
1985	4.41	4.41	4.13	.0782	.0719	.0398	.9376	77.81	77.81	112.55	.5879
1986	4.42	4.42	4.14	.0853	.0784	.0434	.9442	78.36	78.36	115.93	.6185
1987	4.65	4.65	4.37	.0840	.0772	.0427	.9508	78.91	78.91	119.41	.6506
1988	5.06	5.06	4.78	.0880	.0809	.0447	.9575	79.46	79.46	122.99	.6845
1989	5.51	5.51	5.23	.0850	.0789	.0436	.9642	80.01	80.01	126.68	.7201
1990	5.84	5.84	5.56	.0897	.0825	.0456	.9709	80.58	80.58	130.48	.7575
1991	6.00	6.00	5.72	.0886	.0814	.0450	.9826	81.54	81.54	134.39	.7969
1992	5.99	5.99	5.71	.0889	.0818	.0452	.9944	82.52	82.52	138.42	.8383
1993	5.94	5.94	5.66	.0884	.0812	.0449	1.0063	83.51	83.51	142.58	.8819
1994	6.02	6.02	5.74	.0877	.0807	.0446	1.0184	84.51	84.51	146.85	.9278
1995	6.16	6.16	5.88	.0852	.0783	.0433	1.0306	85.53	85.53	151.26	.9760
1996	6.39	6.39	6.11	.0844	.0775	.0429	1.0512	87.24	87.24	155.80	1.0268
1997	6.62	6.62	6.34	.0835	.0767	.0424	1.0722	88.98	88.98	160.47	1.0802
1998	6.85	6.85	6.57	.0827	.0760	.0420	1.0937	90.76	90.76	165.28	1.1363
1999	7.12	7.12	6.84	.0814	.0748	.0414	1.1156	92.58	92.58	170.24	1.1954
2000	7.41	7.41	7.13	.0799	.0734	.0406	1.1379	94.43	94.43	175.35	1.2576

ANNUAL RATES OF GROWTH

1981-1985	2.86%	2.86%	3.07%	6.73%	6.73%	6.73%	-6.08%	-6.08%	-6.08%	3.00%	5.20%
1985-1990	5.78%	5.78%	6.13%	2.78%	2.78%	2.78%	.70%	.70%	.70%	3.00%	5.20%
1990-1995	1.07%	1.07%	1.13%	-1.03%	-1.03%	-1.03%	1.20%	1.20%	1.20%	3.00%	5.20%
1995-2000	3.76%	3.76%	3.93%	-1.27%	-1.27%	-1.27%	2.00%	2.00%	2.00%	3.00%	5.20%
1981-2000	3.38%	3.38%	3.57%	1.50%	1.50%	1.50%	-.30%	-.30%	-.30%	3.00%	5.20%

#37 -- ADDABBO - HEINZ SCENARIO

FRI, MAY 13, 1983, 3:37 PM

MONTANA (REGION=North Central)

VALUE ADDED INDEXES BY 2-DIGIT SIC

YEAR	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1981	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1982	.99	.89	.91	.93	.88	1.01	.90	.85	.65	.82	.81	.95	.95	.92
1983	1.01	.93	.94	.97	.92	1.02	.95	.88	.69	.85	.86	1.00	.98	.98
1984	1.04	.97	.97	1.01	.95	1.04	1.00	.92	.73	.89	.91	1.05	1.01	1.04
1985	1.07	1.01	1.01	1.05	.99	1.05	1.06	.96	.77	.92	.96	1.10	1.04	1.10
1986	1.10	1.06	1.05	1.10	1.05	1.05	1.13	1.01	.81	.96	1.02	1.18	1.09	1.14
1987	1.12	1.11	1.09	1.15	1.11	1.05	1.20	1.07	.84	1.00	1.08	1.26	1.14	1.17
1988	1.15	1.17	1.13	1.20	1.18	1.05	1.28	1.14	.87	1.04	1.15	1.34	1.19	1.21
1989	1.18	1.23	1.17	1.26	1.25	1.05	1.36	1.21	.91	1.08	1.22	1.43	1.24	1.25
1990	1.21	1.29	1.22	1.32	1.32	1.05	1.45	1.28	.94	1.12	1.29	1.53	1.30	1.29
1991	1.24	1.34	1.26	1.36	1.38	1.05	1.54	1.33	.98	1.15	1.35	1.60	1.33	1.33
1992	1.27	1.40	1.30	1.41	1.43	1.05	1.64	1.39	1.01	1.19	1.41	1.67	1.36	1.36
1993	1.31	1.46	1.34	1.46	1.49	1.05	1.75	1.45	1.05	1.22	1.47	1.75	1.39	1.40
1994	1.34	1.52	1.38	1.50	1.54	1.05	1.86	1.51	1.09	1.25	1.54	1.83	1.42	1.44
1995	1.38	1.59	1.43	1.56	1.60	1.04	1.98	1.57	1.12	1.29	1.61	1.91	1.45	1.48
1996	1.41	1.66	1.47	1.61	1.67	1.04	2.08	1.62	1.16	1.32	1.68	2.00	1.48	1.52
1997	1.45	1.73	1.52	1.66	1.74	1.04	2.18	1.68	1.21	1.36	1.76	2.09	1.51	1.56
1998	1.49	1.80	1.57	1.72	1.81	1.04	2.28	1.73	1.25	1.40	1.84	2.18	1.55	1.60
1999	1.53	1.88	1.62	1.78	1.88	1.04	2.39	1.79	1.29	1.44	1.92	2.28	1.58	1.65
2000	1.56	1.96	1.67	1.84	1.96	1.03	2.51	1.85	1.34	1.48	2.00	2.38	1.62	1.70

ANNUAL RATES OF GROWTH

1981-1985	1.71%	.25%	.25%	1.23%	-.25%	1.23%	1.47%	-1.02%	-6.33%	-2.06%	-1.02%	2.41%	.99%	2.41%
1985-1990	2.49%	5.02%	3.85%	4.68%	5.92%	.00%	6.47%	5.92%	4.07%	4.01%	6.09%	6.82%	4.56%	3.24%
1990-1995	2.66%	4.27%	3.23%	3.40%	3.92%	-.19%	6.43%	4.17%	3.57%	2.87%	4.53%	4.54%	2.21%	2.79%
1995-2000	2.48%	4.27%	3.15%	3.36%	4.14%	-.19%	4.86%	3.34%	3.65%	2.79%	4.43%	4.50%	2.24%	2.81%
1981-2000	2.37%	3.61%	2.74%	3.26%	3.61%	.16%	4.96%	3.29%	1.55%	2.08%	3.72%	4.67%	2.57%	2.83%

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#37 -- ADDABBO - HEINZ SCENARIO                                                              FRI, MAY 13, 1983,  3:37 PM

MONTANA  (REGION=North Central        )

                                        WAGE INDEXES BY 2-DIGIT SIC
                                        ---------------------------

                                                                               PRIMARY  FABRIC.           ELECTRIC
YEAR      FOOD  TEXTILE   LUMBER     PAPER CHEMICAL   PETROL   RUBBER    STONE    METAL    METAL  MACHINE  MACHINE   TRANSP    OTHER
----  -------  -------  -------  -------  -------  -------  -------  -------  -------  -------  -------  -------  -------  -------
1981     1.00     1.00     1.00     1.00     1.00     1.00     1.00     1.00     1.00     1.00     1.00     1.00     1.00     1.00
1982     1.02     1.02     1.02     1.02     1.02     1.02     1.02     1.02     1.02     1.02     1.02     1.02     1.02     1.02
1983     1.04     1.04     1.04     1.04     1.04     1.04     1.04     1.04     1.04     1.04     1.04     1.04     1.04     1.04
1984     1.06     1.06     1.06     1.06     1.06     1.06     1.06     1.06     1.06     1.06     1.06     1.06     1.06     1.06
1985     1.08     1.08     1.08     1.08     1.08     1.08     1.08     1.08     1.08     1.08     1.08     1.08     1.08     1.08
1986     1.10     1.10     1.10     1.10     1.10     1.10     1.10     1.10     1.10     1.10     1.10     1.10     1.10     1.10
1987     1.13     1.13     1.13     1.13     1.13     1.13     1.13     1.13     1.13     1.13     1.13     1.13     1.13     1.13
1988     1.15     1.15     1.15     1.15     1.15     1.15     1.15     1.15     1.15     1.15     1.15     1.15     1.15     1.15
1989     1.17     1.17     1.17     1.17     1.17     1.17     1.17     1.17     1.17     1.17     1.17     1.17     1.17     1.17
1990     1.20     1.20     1.20     1.20     1.20     1.20     1.20     1.20     1.20     1.20     1.20     1.20     1.20     1.20
1991     1.22     1.22     1.22     1.22     1.22     1.22     1.22     1.22     1.22     1.22     1.22     1.22     1.22     1.22
1992     1.24     1.24     1.24     1.24     1.24     1.24     1.24     1.24     1.24     1.24     1.24     1.24     1.24     1.24
1993     1.27     1.27     1.27     1.27     1.27     1.27     1.27     1.27     1.27     1.27     1.27     1.27     1.27     1.27
1994     1.29     1.29     1.29     1.29     1.29     1.29     1.29     1.29     1.29     1.29     1.29     1.29     1.29     1.29
1995     1.32     1.32     1.32     1.32     1.32     1.32     1.32     1.32     1.32     1.32     1.32     1.32     1.32     1.32
1996     1.35     1.35     1.35     1.35     1.35     1.35     1.35     1.35     1.35     1.35     1.35     1.35     1.35     1.35
1997     1.37     1.37     1.37     1.37     1.37     1.37     1.37     1.37     1.37     1.37     1.37     1.37     1.37     1.37
1998     1.40     1.40     1.40     1.40     1.40     1.40     1.40     1.40     1.40     1.40     1.40     1.40     1.40     1.40
1999     1.43     1.43     1.43     1.43     1.43     1.43     1.43     1.43     1.43     1.43     1.43     1.43     1.43     1.43
2000     1.46     1.46     1.46     1.46     1.46     1.46     1.46     1.46     1.46     1.46     1.46     1.46     1.46     1.46


ANNUAL RATES OF GROWTH
----------------------

1981-1985 2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%
1985-1990 2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%
1990-1995 2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%
1995-2000 2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%

1981-2000 2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%
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037 -- ADDABBO - HEINZ SCENARIO                                                    FRI, MAY 13, 1983,  3:37 PM

NEBRASKA (REGION=Central            )

                                             DEMOGRAPHIC DATA
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                                                                       --RATIO OF TOTAL COMMERCIAL ACTIVITY--
                                HOUSE-   PERSONAL                        URBAN   -------------------------------------   NON-MFG/
     YEAR      PEOPLE           HOLDS      INCOME  INCOME/HH     APTS    RATIO     MINING  AGRICULT    TRANSP CONSTRUCT  TOT EARN
   --------   --------       --------    --------   --------  --------  --------  -------- --------  -------- --------  --------
                                       ($000,000) ($1981/HH) ---------------------------(RATIOS)----------------------------------
     1981     1577536          581107       16346      28129     .1263   1.0000     .0028     .1441     .0925     .0717     .0315
     1982     1585109          591393       16101      27225     .1281   1.0000     .0027     .1412     .0924     .0716     .0307
     1983     1592710          601861       16584      27554     .1301   1.0000     .0027     .1385     .0922`    .0716     .0298
     1984     1600363          612513       17314      28266     .1320   1.0000     .0026     .1358     .0920     .0715     .0289
     1985     1608044          623355       18006      28886     .1339   1.0000     .0025     .1332     .0918     .0715     .0280
     1986     1618015          632580       18600      29404     .1360   1.0000     .0025     .1306     .0916     .0714     .0271
     1987     1628046          641943       19214      29931     .1379   1.0000     .0024     .1281     .0914     .0714     .0262
     1988     1638140          651444       19848      30468     .1400   1.0000     .0024     .1256     .0912     .0713     .0253
     1989     1648296          661085       20503      31014     .1421   1.0000     .0023     .1231     .0911     .0713     .0244
     1990     1658516          670869       21180      31571     .1441   1.0000     .0023     .1208     .0909     .0712     .0234
     1991     1668301          679523       21773      32041     .1462   1.0000     .0023     .1185     .0907     .0711     .0224
     1992     1678144          688289       22382      32519     .1484   1.0000     .0023     .1163     .0905     .0710     .0214
     1993     1688045          697168       23009      33004     .1505   1.0000     .0023     .1142     .0903     .0709     .0204
     1994     1698004          706162       23653      33496     .1527   1.0000     .0023     .1120     .0901     .0708     .0194
     1995     1708021          715272       24316      33995     .1549   1.0000     .0023     .1099     .0899     .0707     .0184
     1996     1718099          724490       24997      34502     .1572   1.0000     .0023     .1079     .0897     .0706     .0174
     1997     1728235          733844       25696      35016     .1594   1.0000     .0023     .1059     .0895     .0705     .0164
     1998     1738432          743312       26416      35538     .1618   1.0000     .0023     .1039     .0893     .0704     .0154
     1999     1748688          752900       27156      36068     .1641   1.0000     .0023     .1019     .0891     .0703     .0145
     2000     1759006          762613       27916      36606     .1666   1.0000     .0023     .1000     .0889     .0702     .0135


ANNUAL RATES OF GROWTH
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1981-1985          .48%      1.77%      2.45%       .67%     1.47%      .00%    -2.79%    -1.95%     -.19%     -.07%     -.11%
1985-1990          .62%      1.48%      3.30%      1.79%     1.48%      .00%    -1.65%    -1.94%     -.20%     -.08%     -.11%
1990-1995          .59%      1.29%      2.80%      1.49%     1.46%      .00%      .00%    -1.87%     -.22%     -.14%     -.12%
1995-2000          .59%      1.29%      2.80%      1.49%     1.47%      .00%      .00%    -1.87%     -.22%     -.14%     -.12%

1981-2000          .57%      1.44%      2.06%      1.40%     1.47%      .00%    -1.03%    -1.90%     -.21%     -.11%     -.12%
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#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

NEBRASKA (REGION=Central)

ENERGY PRICES

YEAR	GAS			ELECTRIC			PETROLEUM			COAL	LPG
	RESIDENT	COMMERC	INDUSTR	RESIDENT	COMMERC	INDUSTR	RESIDENT	COMMERC	INDUSTR		
	-------($1981/MMBTU)-------			($1981/KWH)	----(INDEX)------		($1981/GAL.	-----(INDEX)-----		(INDEX)	($1981/GAL)
1981	3.44	2.99	2.75	.0611	.0575	.0418	1.2050	100.00	100.00	100.00	.4800
1982	4.00	3.55	3.31	.0686	.0644	.0468	1.1027	91.51	91.51	103.00	.5050
1983	4.13	3.68	3.44	.0679	.0638	.0464	.9820	81.49	81.49	106.09	.5312
1984	4.07	3.62	3.38	.0691	.0650	.0472	.9538	79.15	79.15	109.27	.5588
1985	3.91	3.46	3.22	.0829	.0779	.0566	.9376	77.81	77.81	112.55	.5879
1986	3.92	3.47	3.23	.0805	.0757	.0550	.9442	78.36	78.36	115.93	.6185
1987	4.15	3.70	3.46	.0787	.0740	.0537	.9508	78.91	78.91	119.41	.6506
1988	4.56	4.11	3.87	.0770	.0724	.0526	.9575	79.46	79.46	122.99	.6845
1989	5.01	4.56	4.32	.0765	.0719	.0523	.9642	80.01	80.01	126.68	.7201
1990	5.34	4.89	4.65	.0755	.0710	.0516	.9709	80.58	80.58	130.48	.7575
1991	5.50	5.05	4.81	.0784	.0737	.0536	.9826	81.54	81.54	134.39	.7969
1992	5.49	5.04	4.80	.0778	.0731	.0531	.9944	82.52	82.52	138.42	.8383
1993	5.44	4.99	4.75	.0766	.0721	.0523	1.0063	83.51	83.51	142.58	.8819
1994	5.52	5.07	4.83	.0755	.0710	.0516	1.0184	84.51	84.51	146.85	.9278
1995	5.66	5.21	4.97	.0723	.0680	.0494	1.0306	85.53	85.53	151.26	.9760
1996	5.89	5.44	5.20	.0713	.0670	.0487	1.0512	87.24	87.24	155.80	1.0268
1997	6.12	5.67	5.43	.0702	.0660	.0480	1.0722	88.98	88.98	160.47	1.0802
1998	6.35	5.90	5.66	.0692	.0651	.0473	1.0937	90.76	90.76	165.28	1.1363
1999	6.62	6.17	5.93	.0678	.0638	.0463	1.1156	92.58	92.58	170.24	1.1954
2000	6.91	6.46	6.22	.0664	.0624	.0454	1.1379	94.43	94.43	175.35	1.2576

ANNUAL RATES OF GROWTH

1981-1985	3.25%	3.72%	4.02%	7.91%	7.90%	7.91%	-6.00%	-6.00%	-6.00%	3.00%	5.20%
1985-1990	6.43%	7.16%	7.63%	-1.85%	-1.85%	-1.85%	.70%	.70%	.70%	3.00%	5.20%
1990-1995	1.17%	1.28%	1.34%	-.86%	-.87%	-.86%	1.20%	1.20%	1.20%	3.00%	5.20%
1995-2000	4.07%	4.39%	4.59%	-1.68%	-1.68%	-1.68%	2.00%	2.00%	2.00%	3.00%	5.20%
1981-2000	3.74%	4.14%	4.39%	.44%	.44%	.44%	-.30%	-.30%	-.30%	3.00%	5.20%

#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

NEBRASKA (REGION=Central)

VALUE ADDED INDEXES BY 2-DIGIT SIC

YEAR	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1981	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1982	.99	.89	.91	.93	.88	1.01	.90	.85	.65	.82	.81	.95	.95	.92
1983	1.01	.93	.94	.97	.92	1.02	.95	.88	.69	.85	.86	1.00	.98	.98
1984	1.04	.97	.97	1.01	.95	1.04	1.00	.92	.73	.89	.91	1.05	1.01	1.04
1985	1.07	1.01	1.01	1.05	.99	1.05	1.06	.96	.77	.92	.96	1.10	1.04	1.10
1986	1.10	1.06	1.05	1.10	1.05	1.05	1.13	1.01	.81	.96	1.02	1.18	1.09	1.14
1987	1.12	1.11	1.09	1.15	1.11	1.05	1.20	1.07	.84	1.00	1.08	1.26	1.14	1.17
1988	1.15	1.17	1.13	1.20	1.18	1.05	1.28	1.14	.87	1.04	1.15	1.34	1.19	1.21
1989	1.18	1.23	1.17	1.26	1.25	1.05	1.36	1.21	.91	1.08	1.22	1.43	1.24	1.25
1990	1.21	1.29	1.22	1.32	1.32	1.05	1.45	1.28	.94	1.12	1.29	1.53	1.30	1.29
1991	1.24	1.34	1.26	1.36	1.38	1.05	1.54	1.33	.98	1.15	1.35	1.60	1.33	1.33
1992	1.27	1.40	1.30	1.41	1.43	1.05	1.64	1.39	1.01	1.19	1.41	1.67	1.36	1.36
1993	1.31	1.46	1.34	1.46	1.49	1.05	1.75	1.45	1.05	1.22	1.47	1.75	1.39	1.40
1994	1.34	1.52	1.38	1.50	1.54	1.05	1.86	1.51	1.09	1.25	1.54	1.83	1.42	1.44
1995	1.38	1.59	1.43	1.56	1.60	1.04	1.98	1.57	1.12	1.29	1.61	1.91	1.45	1.48
1996	1.41	1.66	1.47	1.61	1.67	1.04	2.08	1.62	1.16	1.32	1.68	2.00	1.48	1.52
1997	1.45	1.73	1.52	1.66	1.74	1.04	2.18	1.68	1.21	1.36	1.76	2.09	1.51	1.56
1998	1.49	1.80	1.57	1.72	1.81	1.04	2.28	1.73	1.25	1.40	1.84	2.18	1.55	1.60
1999	1.53	1.88	1.62	1.78	1.88	1.04	2.39	1.79	1.29	1.44	1.92	2.28	1.58	1.65
2000	1.56	1.96	1.67	1.84	1.96	1.03	2.51	1.85	1.34	1.48	2.00	2.38	1.62	1.70

ANNUAL RATES OF GROWTH

1981-1985	1.71%	.25%	.25%	1.23%	-.25%	1.23%	1.47%	-1.02%	-6.33%	-2.06%	-1.02%	2.41%	.99%	2.41%
1985-1990	2.49%	5.02%	3.85%	4.68%	5.92%	.00%	6.47%	5.92%	4.07%	4.01%	6.09%	6.02%	4.56%	3.24%
1990-1995	2.66%	4.27%	3.23%	3.40%	3.92%	-.19%	6.43%	4.17%	3.57%	2.87%	4.53%	4.54%	2.21%	2.79%
1995-2000	2.48%	4.27%	3.15%	3.36%	4.14%	-.19%	4.86%	3.34%	3.65%	2.79%	4.43%	4.50%	2.24%	2.81%
1981-2000	2.37%	3.61%	2.74%	3.26%	3.61%	.16%	4.96%	3.29%	1.55%	2.08%	3.72%	4.67%	2.57%	2.83%

#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

NEBRASKA (REGION=Central)

WAGE INDEXES BY 2-DIGIT SIC

YEAR	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1981	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1982	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
1983	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
1984	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
1985	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08
1986	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
1987	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13
1988	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15
1989	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17
1990	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
1991	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22
1992	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24
1993	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27
1994	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29
1995	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32
1996	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35
1997	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37
1998	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40
1999	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43
2000	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46

ANNUAL RATES OF GROWTH

1981-1985	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1985-1990	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1990-1995	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1995-2000	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1981-2000	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%

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NEVADA (REGION=West)

DEMOGRAPHIC DATA

YEAR	PEOPLE	HOUSE-HOLDS	PERSONAL INCOME ($000,000)	INCOME/HH ($1981/HH)	APTS	URBAN RATIO	--RATIO OF TOTAL COMMERCIAL ACTIVITY-- MINING	AGRICULT	TRANSP	CONSTRUCT	NON-MFG/ TOT EARN
					(RATIOS)						
1981	831040	320234	9782	30546	.2416	1.0000	.0148	.0154	.0758	.0776	.9570
1982	864364	337334	9635	28563	.2452	1.0000	.0145	.0149	.0758	.0773	.9570
1983	899026	355349	9924	27928	.2488	1.0000	.0141	.0145	.0759	.0770	.9571
1984	935076	374324	10361	27679	.2525	1.0000	.0138	.0141	.0760	.0767	.9572
1985	972572	394313	10775	27327	.2560	1.0000	.0135	.0137	.0761	.0764	.9572
1986	1003696	410401	11131	27122	.2599	1.0000	.0132	.0133	.0762	.0761	.9573
1987	1035813	427145	11498	26919	.2636	1.0000	.0129	.0129	.0763	.0758	.9574
1988	1068960	444573	11878	26717	.2674	1.0000	.0126	.0125	.0763	.0755	.9574
1989	1103167	462712	12270	26517	.2714	1.0000	.0123	.0122	.0764	.0752	.9575
1990	1138467	481590	12675	26318	.2753	1.0000	.0120	.0118	.0765	.0749	.9575
1991	1170459	498542	13030	26135	.2793	1.0000	.0117	.0114	.0766	.0746	.9575
1992	1203349	516091	13394	25954	.2834	1.0000	.0114	.0110	.0767	.0743	.9575
1993	1237163	534258	13769	25773	.2877	1.0000	.0111	.0107	.0768	.0740	.9575
1994	1271927	553063	14155	25594	.2918	1.0000	.0109	.0103	.0769	.0737	.9575
1995	1307669	572531	14551	25416	.2960	1.0000	.0106	.0100	.0770	.0734	.9575
1996	1344413	592684	14959	25239	.3004	1.0000	.0103	.0097	.0771	.0731	.9575
1997	1382191	613546	15378	25063	.3048	1.0000	.0101	.0093	.0772	.0728	.9575
1998	1421031	635144	15808	24889	.3093	1.0000	.0098	.0090	.0773	.0725	.9575
1999	1460962	657501	16251	24716	.3139	1.0000	.0096	.0087	.0774	.0723	.9575
2000	1502016	680645	16706	24544	.3184	1.0000	.0094	.0085	.0775	.0720	.9575

ANNUAL RATES OF GROWTH

1981-1985	4.01%	5.34%	2.45%	-2.75%	1.46%	.00%	-2.27%	-2.88%	.10%	-.39%	.01%
1985-1990	3.20%	4.08%	3.30%	-.75%	1.46%	.00%	-2.33%	-2.94%	.10%	-.40%	.01%
1990-1995	2.81%	3.52%	2.80%	-.70%	1.46%	.00%	-2.45%	-3.26%	.13%	-.40%	.00%
1995-2000	2.81%	3.52%	2.80%	-.70%	1.47%	.00%	-2.37%	-3.20%	.13%	-.38%	.00%
1981-2000	3.16%	4.05%	2.86%	-1.14%	1.46%	.00%	-2.36%	-3.08%	.12%	-.39%	.00%

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NEVADA (REGION=West)

ENERGY PRICES

	GAS			ELECTRIC			PETROLEUM				
YEAR	RESIDENT	COMMERC	INDUSTR	RESIDENT	COMMERC	INDUSTR	RESIDENT	COMMERC	INDUSTR	COAL	LPG
	-------($1981/MMBTU	)-------		($1981/KWH)	----(INDEX	)------	($1981/GAL)	-----(INDEX	)-----	(INDEX)	($1981/GAL)
1981	4.64	4.48	3.26	.0626	.0680	.0546	1.2050	100.00	100.00	100.00	.4800
1982	5.20	5.04	3.82	.0661	.0719	.0577	1.1027	91.51	91.51	103.00	.5050
1983	5.33	5.17	3.95	.0660	.0718	.0576	.9820	81.49	81.49	106.09	.5312
1984	5.27	5.11	3.89	.0788	.0847	.0680	.9538	79.15	79.15	109.27	.5588
1985	5.11	4.95	3.73	.0818	.0889	.0714	.9376	77.81	77.81	112.55	.5879
1986	5.12	4.96	3.74	.0794	.0863	.0693	.9442	78.36	78.36	115.93	.6185
1987	5.35	5.19	3.97	.0819	.0890	.0715	.9508	78.91	78.91	119.41	.6506
1988	5.76	5.60	4.38	.0777	.0844	.0678	.9575	79.46	79.46	122.99	.6845
1989	6.21	6.05	4.83	.0818	.0880	.0706	.9642	80.01	80.01	126.68	.7201
1990	6.54	6.38	5.16	.0781	.0849	.0682	.9709	80.58	80.58	130.48	.7575
1991	6.70	6.54	5.32	.0801	.0870	.0698	.9826	81.54	81.54	134.39	.7969
1992	6.69	6.53	5.31	.0799	.0868	.0697	.9944	82.52	82.52	138.42	.8383
1993	6.64	6.48	5.26	.0719	.0781	.0627	1.0063	83.51	83.51	142.58	.8819
1994	6.72	6.56	5.34	.0652	.0709	.0569	1.0184	84.51	84.51	146.85	.9278
1995	6.86	6.70	5.48	.0826	.0898	.0721	1.0306	85.53	85.53	151.26	.9760
1996	7.09	6.93	5.71	.0741	.0805	.0646	1.0512	87.24	87.24	155.80	1.0268
1997	7.32	7.16	5.94	.0685	.0744	.0598	1.0722	88.98	88.98	160.47	1.0802
1998	7.55	7.39	6.17	.0635	.0690	.0554	1.0937	90.76	90.76	165.28	1.1363
1999	7.82	7.66	6.44	.0795	.0864	.0694	1.1156	92.58	92.58	170.24	1.1954
2000	8.11	7.95	6.73	.0711	.0773	.0620	1.1379	94.43	94.43	175.35	1.2576

ANNUAL RATES OF GROWTH

1981-1985	2.44%	2.53%	3.42%	6.91%	6.91%	6.91%	-6.08%	-6.08%	-6.08%	3.00%	5.20%
1985-1990	5.06%	5.21%	6.71%	-.91%	-.91%	-.91%	.70%	.70%	.70%	3.00%	5.20%
1990-1995	.96%	.98%	1.21%	1.12%	1.13%	1.12%	1.20%	1.20%	1.20%	3.00%	5.20%
1995-2000	3.40%	3.48%	4.19%	-2.96%	-2.96%	-2.96%	2.00%	2.00%	2.00%	3.00%	5.20%
1981-2000	2.98%	3.06%	3.89%	.67%	.67%	.67%	-.30%	-.30%	-.30%	3.00%	5.20%

#37 -- ADDABBO - HEINZ SCENARIO

FRI, MAY 13, 1983, 3:37 PM

NEVADA (REGION=West)

VALUE ADDED INDEXES BY 2-DIGIT SIC

YEAR	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1981	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1982	.99	.89	.91	.93	.88	1.01	.90	.85	.65	.82	.81	.95	.95	.92
1983	1.01	.93	.94	.97	.92	1.02	.95	.88	.69	.85	.86	1.00	.98	.98
1984	1.04	.97	.97	1.01	.95	1.04	1.00	.92	.73	.89	.91	1.05	1.01	1.04
1985	1.07	1.01	1.01	1.05	.99	1.05	1.06	.96	.77	.92	.96	1.10	1.04	1.10
1986	1.10	1.06	1.05	1.10	1.05	1.05	1.13	1.01	.81	.96	1.02	1.18	1.09	1.14
1987	1.12	1.11	1.09	1.15	1.11	1.05	1.20	1.07	.84	1.00	1.08	1.26	1.14	1.17
1988	1.15	1.17	1.13	1.20	1.18	1.05	1.28	1.14	.87	1.04	1.15	1.34	1.19	1.21
1989	1.18	1.23	1.17	1.26	1.25	1.05	1.36	1.21	.91	1.08	1.22	1.43	1.24	1.25
1990	1.21	1.29	1.22	1.32	1.32	1.05	1.45	1.28	.94	1.12	1.29	1.53	1.30	1.29
1991	1.24	1.34	1.26	1.36	1.38	1.05	1.54	1.33	.98	1.15	1.35	1.60	1.33	1.33
1992	1.27	1.40	1.30	1.41	1.43	1.05	1.64	1.39	1.01	1.19	1.41	1.67	1.36	1.36
1993	1.31	1.46	1.34	1.46	1.49	1.05	1.75	1.45	1.05	1.22	1.47	1.75	1.39	1.40
1994	1.34	1.52	1.38	1.50	1.54	1.05	1.86	1.51	1.09	1.25	1.54	1.83	1.42	1.44
1995	1.38	1.59	1.43	1.56	1.60	1.04	1.98	1.57	1.12	1.29	1.61	1.91	1.45	1.48
1996	1.41	1.66	1.47	1.61	1.67	1.04	2.08	1.62	1.16	1.32	1.68	2.00	1.48	1.52
1997	1.45	1.73	1.52	1.66	1.74	1.04	2.18	1.68	1.21	1.36	1.76	2.09	1.51	1.56
1998	1.49	1.80	1.57	1.72	1.81	1.04	2.28	1.73	1.25	1.40	1.84	2.18	1.55	1.60
1999	1.53	1.88	1.62	1.78	1.88	1.04	2.39	1.79	1.29	1.44	1.92	2.28	1.58	1.65
2000	1.56	1.96	1.67	1.84	1.96	1.03	2.51	1.85	1.34	1.48	2.00	2.38	1.62	1.70

ANNUAL RATES OF GROWTH

1981-1985	1.71%	.25%	.25%	1.23%	-.25%	1.23%	1.47%	-1.02%	-6.33%	-2.06%	-1.02%	2.41%	.99%	2.41%
1985-1990	2.49%	5.02%	3.85%	4.68%	5.92%	.00%	6.47%	5.92%	4.07%	4.01%	6.09%	6.82%	4.56%	3.24%
1990-1995	2.66%	4.27%	3.23%	3.40%	3.92%	-.19%	6.43%	4.17%	3.57%	2.87%	4.53%	4.54%	2.21%	2.79%
1995-2000	2.48%	4.27%	3.15%	3.36%	4.14%	-.19%	4.86%	3.34%	3.65%	2.79%	4.43%	4.50%	2.24%	2.81%
1981-2000	2.37%	3.61%	2.74%	3.26%	3.61%	.16%	4.96%	3.29%	1.55%	2.08%	3.72%	4.67%	2.57%	2.83%

037 -- ADDABBO - HEINZ SCENARIO　　　　FRI, MAY 13, 1983, 3:37 PM

NEVADA　(REGION=West　　　　)

WAGE INDEXES BY 2-DIGIT SIC

YEAR	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1981	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1982	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
1983	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
1984	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
1985	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08
1986	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
1987	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13
1988	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15
1989	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17
1990	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
1991	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22
1992	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24
1993	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27
1994	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29
1995	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32
1996	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35
1997	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37
1998	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40
1999	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43
2000	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46

ANNUAL RATES OF GROWTH

1981-1985	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1985-1990	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1990-1995	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1995-2000	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1981-2000	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%

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#37 -- ADDABBO - HEINZ SCENARIO                                                    FRI, MAY 13, 1983,  3:37 PM

NEW HMP. (REGION=New England          )

                                                     DEMOGRAPHIC DATA
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                                                                        --RATIO OF TOTAL COMMERCIAL ACTIVITY--
                        HOUSE-  PERSONAL                         URBAN  --------------------------------------  NON-MFG/
      YEAR    PEOPLE     HOLDS    INCOME INCOME/HH      APTS     RATIO    MINING  AGRICULT    TRANSP CONSTRUCT  TOT EARN
  --------  --------  --------  --------  --------  --------  --------  --------  --------  --------  --------  --------
                              ($000,000)($1981/HH)  --------------------------(RATIOS)----------------------------------
      1981    935275    332206      9350     28145     .1459    1.0000     .0018     .0119     .0856     .1025     .6950
      1982    949772    341674      9210     26955     .1480    1.0000     .0018     .0115     .0857     .1022     .6979
      1983    964494    351411      9486     26994     .1503    1.0000     .0017     .0112     .0857     .1020     .7008
      1984    979443    361426      9903     27401     .1524    1.0000     .0017     .0108     .0858     .1017     .7037
      1985    994625    371727     10300     27707     .1546    1.0000     .0017     .0105     .0859     .1014     .7065
      1986   1010042    380723     10639     27945     .1569    1.0000     .0017     .0101     .0860     .1012     .7093
      1987   1025697    389937     10991     28185     .1593    1.0000     .0016     .0098     .0861     .1009     .7121
      1988   1041596    399373     11353     28428     .1616    1.0000     .0016     .0095     .0863     .1007     .7149
      1989   1057740    409038     11728     28672     .1640    1.0000     .0016     .0092     .0864     .1004     .7176
      1990   1074136    418937     12115     28918     .1664    1.0000     .0015     .0089     .0865     .1002     .7203
      1991   1087025    426897     12454     29174     .1688    1.0000     .0014     .0086     .0866     .1000     .7230
      1992   1100070    435008     12803     29431     .1714    1.0000     .0013     .0083     .0867     .0998     .7257
      1993   1113271    443272     13161     29691     .1738    1.0000     .0012     .0081     .0868     .0996     .7285
      1994   1126630    451695     13530     29954     .1763    1.0000     .0012     .0078     .0869     .0994     .7312
      1995   1140150    460277     13909     30218     .1790    1.0000     .0011     .0075     .0870     .0992     .7340
      1996   1153831    469023     14298     30485     .1816    1.0000     .0010     .0073     .0871     .0990     .7367
      1997   1167677    477934     14698     30754     .1843    1.0000     .0010     .0071     .0872     .0988     .7395
      1998   1181690    487014     15110     31026     .1870    1.0000     .0009     .0068     .0873     .0986     .7423
      1999   1195871    496268     15533     31300     .1897    1.0000     .0008     .0066     .0874     .0984     .7451
      2000   1210221    505698     15968     31576     .1926    1.0000     .0008     .0064     .0875     .0982     .7479


ANNUAL RATES OF GROWTH
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1981-1985      1.55%     2.85%     2.45%     -.39%     1.46%      .00%    -1.42%    -3.08%      .09%     -.27%      .41%
1985-1990      1.55%     2.42%     3.30%      .86%     1.48%      .00%    -2.47%    -3.25%      .14%     -.24%      .39%
1990-1995      1.20%     1.90%     2.80%      .88%     1.47%      .00%    -6.01%    -3.37%      .12%     -.20%      .38%
1995-2000      1.20%     1.90%     2.80%      .88%     1.48%      .00%    -6.17%    -3.12%      .11%     -.20%      .38%

1981-2000      1.37%     2.24%     2.86%      .61%     1.47%      .00%    -4.18%    -3.21%      .12%     -.23%      .39%
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#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

NEW HMP. (REGION=New England)

ENERGY PRICES

	GAS			ELECTRIC			PETROLEUM				
YEAR	RESIDENT	COMMERC	INDUSTR	RESIDENT	COMMERC	INDUSTR	RESIDENT	COMMERC	INDUSTR	COAL	LPG
	($1981/MMBTU)			($1981/KWH)	(INDEX)		($1981/GAL)	(INDEX)		(INDEX)	($1981/GAL)
1981	5.26	4.88	4.47	.0890	.0867	.0705	1.2050	100.00	100.00	100.00	.4800
1982	5.82	5.44	5.03	.0940	.0916	.0745	1.1027	91.51	91.51	103.00	.5050
1983	5.95	5.57	5.16	.0950	.0925	.0752	.9820	81.49	81.49	106.09	.5312
1984	5.89	5.51	5.10	.0973	.0948	.0770	.9538	79.15	79.15	109.27	.5588
1985	5.73	5.35	4.94	.1038	.1011	.0822	.9376	77.81	77.81	112.55	.5879
1986	5.74	5.36	4.95	.1025	.0998	.0811	.9442	78.36	78.36	115.93	.6185
1987	5.97	5.59	5.18	.1118	.1089	.0885	.9508	78.91	78.91	119.41	.6506
1988	6.38	6.00	5.59	.1077	.1049	.0853	.9575	79.46	79.46	122.99	.6845
1989	6.83	6.45	6.04	.1048	.1021	.0830	.9642	80.01	80.01	126.68	.7201
1990	7.16	6.78	6.37	.1041	.1014	.0824	.9709	80.58	80.58	130.48	.7575
1991	7.32	6.94	6.53	.1049	.1022	.0831	.9826	81.54	81.54	134.39	.7969
1992	7.31	6.93	6.52	.1027	.1000	.0813	.9944	82.52	82.52	138.42	.8383
1993	7.26	6.88	6.47	.0997	.0971	.0789	1.0063	83.51	83.51	142.58	.8819
1994	7.34	6.96	6.55	.0970	.0945	.0768	1.0184	84.51	84.51	146.85	.9278
1995	7.48	7.10	6.69	.0927	.0903	.0734	1.0306	85.53	85.53	151.26	.9760
1996	7.71	7.33	6.92	.0907	.0884	.0719	1.0512	87.24	87.24	155.80	1.0268
1997	7.94	7.56	7.15	.0890	.0867	.0705	1.0722	88.98	88.98	160.47	1.0802
1998	8.17	7.79	7.38	.0888	.0865	.0703	1.0937	90.76	90.76	165.28	1.1363
1999	8.44	8.06	7.65	.0870	.0848	.0689	1.1156	92.58	92.58	170.24	1.1954
2000	8.73	8.35	7.94	.0860	.0837	.0680	1.1379	94.43	94.43	175.35	1.2576

ANNUAL RATES OF GROWTH

1981-1985	2.16%	2.33%	2.53%	3.91%	3.91%	3.91%	-6.08%	-6.08%	-6.08%	3.00%	5.20%
1985-1990	4.56%	4.85%	5.22%	.06%	.06%	.06%	.70%	.70%	.70%	3.00%	5.20%
1990-1995	.88%	.93%	.99%	-2.29%	-2.29%	-2.29%	1.20%	1.20%	1.20%	3.00%	5.20%
1995-2000	3.14%	3.30%	3.49%	-1.50%	-1.50%	-1.50%	2.00%	2.00%	2.00%	3.00%	5.20%
1981-2000	2.70%	2.87%	3.07%	-.18%	-.18%	-.18%	-.30%	-.30%	-.30%	3.00%	5.20%

#37 -- ADDABBO - HEINZ SCENARIO

FRI, MAY 13, 1983, 3:37 PM

NEW HMP. (REGION=New England)

VALUE ADDED INDEXES BY 2-DIGIT SIC

YEAR	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1981	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1982	.99	.89	.91	.93	.88	1.01	.90	.85	.65	.82	.81	.95	.95	.92
1983	1.01	.93	.94	.97	.92	1.02	.95	.88	.69	.85	.86	1.00	.98	.98
1984	1.04	.97	.97	1.01	.95	1.04	1.00	.92	.73	.89	.91	1.05	1.01	1.04
1985	1.07	1.01	1.01	1.05	.99	1.05	1.06	.96	.77	.92	.96	1.10	1.04	1.10
1986	1.10	1.06	1.05	1.10	1.05	1.05	1.13	1.01	.81	.96	1.02	1.18	1.09	1.14
1987	1.12	1.11	1.09	1.15	1.11	1.05	1.20	1.07	.84	1.00	1.08	1.26	1.14	1.17
1988	1.15	1.17	1.13	1.20	1.18	1.05	1.28	1.14	.87	1.04	1.15	1.34	1.19	1.21
1989	1.18	1.23	1.17	1.26	1.25	1.05	1.36	1.21	.91	1.08	1.22	1.43	1.24	1.25
1990	1.21	1.29	1.22	1.32	1.32	1.05	1.45	1.28	.94	1.12	1.29	1.53	1.30	1.29
1991	1.24	1.34	1.26	1.36	1.38	1.05	1.54	1.33	.98	1.15	1.35	1.60	1.33	1.33
1992	1.27	1.40	1.30	1.41	1.43	1.05	1.64	1.39	1.01	1.19	1.41	1.67	1.36	1.36
1993	1.31	1.46	1.34	1.46	1.49	1.05	1.75	1.45	1.05	1.22	1.47	1.75	1.39	1.40
1994	1.34	1.52	1.38	1.50	1.54	1.05	1.86	1.51	1.09	1.25	1.54	1.83	1.42	1.44
1995	1.38	1.59	1.43	1.56	1.60	1.04	1.98	1.57	1.12	1.29	1.61	1.91	1.45	1.48
1996	1.41	1.66	1.47	1.61	1.67	1.04	2.08	1.62	1.16	1.32	1.68	2.00	1.48	1.52
1997	1.45	1.73	1.52	1.66	1.74	1.04	2.18	1.68	1.21	1.36	1.76	2.09	1.51	1.56
1998	1.49	1.80	1.57	1.72	1.81	1.04	2.28	1.73	1.25	1.40	1.84	2.18	1.55	1.60
1999	1.53	1.88	1.62	1.78	1.88	1.04	2.39	1.79	1.29	1.44	1.92	2.28	1.58	1.65
2000	1.56	1.96	1.67	1.84	1.96	1.03	2.51	1.85	1.34	1.48	2.00	2.38	1.62	1.70

ANNUAL RATES OF GROWTH

1981-1985	1.71%	.25%	.25%	1.23%	-.25%	1.23%	1.47%	-1.02%	-6.33%	-2.06%	-1.02%	2.41%	.99%	2.41%
1985-1990	2.49%	5.02%	3.85%	4.68%	5.92%	.00%	6.47%	5.92%	4.07%	4.01%	6.09%	6.82%	4.56%	3.24%
1990-1995	2.66%	4.27%	3.23%	3.40%	3.92%	-.19%	6.43%	4.17%	3.57%	2.87%	4.53%	4.54%	2.21%	2.79%
1995-2000	2.48%	4.27%	3.15%	3.36%	4.14%	-.19%	4.86%	3.34%	3.65%	2.79%	4.43%	4.50%	2.24%	2.81%
1981-2000	2.37%	3.61%	2.74%	3.26%	3.61%	.16%	4.96%	3.29%	1.55%	2.08%	3.72%	4.67%	2.57%	2.83%

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#37 -- ADDABBO - HEINZ SCENARIO                                                           FRI, MAY 13, 1983,  3:37 PM

NEW HMP. (REGION=New England        )

                                                WAGE INDEXES BY 2-DIGIT SIC
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                                                                                     PRIMARY   FABRIC.             ELECTRIC
YEAR      FOOD  TEXTILE   LUMBER     PAPER CHEMICAL    PETROL   RUBBER     STONE     METAL     METAL   MACHINE  MACHINE    TRANSP     OTHER
----   -------  -------  -------   -------  -------   -------  -------   -------   -------   -------   -------  -------   -------   -------
1981      1.00     1.00     1.00      1.00     1.00      1.00     1.00      1.00      1.00      1.00      1.00     1.00      1.00      1.00
1982      1.02     1.02     1.02      1.02     1.02      1.02     1.02      1.02      1.02      1.02      1.02     1.02      1.02      1.02
1983      1.04     1.04     1.04      1.04     1.04      1.04     1.04      1.04      1.04      1.04      1.04     1.04      1.04      1.04
1984      1.06     1.06     1.06      1.06     1.06      1.06     1.06      1.06      1.06      1.06      1.06     1.06      1.06      1.06
1985      1.08     1.08     1.08      1.08     1.08      1.08     1.08      1.08      1.08      1.08      1.08     1.08      1.08      1.08
1986      1.10     1.10     1.10      1.10     1.10      1.10     1.10      1.10      1.10      1.10      1.10     1.10      1.10      1.10
1987      1.13     1.13     1.13      1.13     1.13      1.13     1.13      1.13      1.13      1.13      1.13     1.13      1.13      1.13
1988      1.15     1.15     1.15      1.15     1.15      1.15     1.15      1.15      1.15      1.15      1.15     1.15      1.15      1.15
1989      1.17     1.17     1.17      1.17     1.17      1.17     1.17      1.17      1.17      1.17      1.17     1.17      1.17      1.17
1990      1.20     1.20     1.20      1.20     1.20      1.20     1.20      1.20      1.20      1.20      1.20     1.20      1.20      1.20
1991      1.22     1.22     1.22      1.22     1.22      1.22     1.22      1.22      1.22      1.22      1.22     1.22      1.22      1.22
1992      1.24     1.24     1.24      1.24     1.24      1.24     1.24      1.24      1.24      1.24      1.24     1.24      1.24      1.24
1993      1.27     1.27     1.27      1.27     1.27      1.27     1.27      1.27      1.27      1.27      1.27     1.27      1.27      1.27
1994      1.29     1.29     1.29      1.29     1.29      1.29     1.29      1.29      1.29      1.29      1.29     1.29      1.29      1.29
1995      1.32     1.32     1.32      1.32     1.32      1.32     1.32      1.32      1.32      1.32      1.32     1.32      1.32      1.32
1996      1.35     1.35     1.35      1.35     1.35      1.35     1.35      1.35      1.35      1.35      1.35     1.35      1.35      1.35
1997      1.37     1.37     1.37      1.37     1.37      1.37     1.37      1.37      1.37      1.37      1.37     1.37      1.37      1.37
1998      1.40     1.40     1.40      1.40     1.40      1.40     1.40      1.40      1.40      1.40      1.40     1.40      1.40      1.40
1999      1.43     1.43     1.43      1.43     1.43      1.43     1.43      1.43      1.43      1.43      1.43     1.43      1.43      1.43
2000      1.46     1.46     1.46      1.46     1.46      1.46     1.46      1.46      1.46      1.46      1.46     1.46      1.46      1.46


ANNUAL RATES OF GROWTH
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1981-1985 2.00%     2.00%    2.00%     2.00%    2.00%     2.00%    2.00%     2.00%     2.00%     2.00%     2.00%    2.00%     2.00%     2.00%
1985-1990 2.00%     2.00%    2.00%     2.00%    2.00%     2.00%    2.00%     2.00%     2.00%     2.00%     2.00%    2.00%     2.00%     2.00%
1990-1995 2.00%     2.00%    2.00%     2.00%    2.00%     2.00%    2.00%     2.00%     2.00%     2.00%     2.00%    2.00%     2.00%     2.00%
1995-2000 2.00%     2.00%    2.00%     2.00%    2.00%     2.00%    2.00%     2.00%     2.00%     2.00%     2.00%    2.00%     2.00%     2.00%

1981-2000 2.00%     2.00%    2.00%     2.00%    2.00%     2.00%    2.00%     2.00%     2.00%     2.00%     2.00%    2.00%     2.00%     2.00%
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#37 -- ADDABBO - HEINZ SCENARIO                                                                  FRI, MAY 13, 1983,  3:37 PM

NEW JER. (REGION=New York-New Jersey )

                                                   DEMOGRAPHIC DATA
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                                                                          --RATIO OF TOTAL COMMERCIAL ACTIVITY--
                           HOUSE-   PERSONAL                      URBAN   --------------------------------------  NON-MFG/
    YEAR     PEOPLE        HOLDS      INCOME INCOME/HH      APTS    RATIO    MINING  AGRICULT    TRANSP CONSTRUCT  TOT EARN
--------   --------     --------    -------- --------  --------  -------- --------  --------  --------  --------  --------
                                   ($000,000) ($1981/HH) ----------------------------(RATIOS)----------------------------------
    1981    7404503      2594883     89788     34602     .2120    1.0000    .0014     .0060     .1138     .0946     .6976
    1982    7445220      2642629     88441     33467     .2151    1.0000    .0014     .0058     .1133     .0941     .6998
    1983    7486177      2691252     91094     33848     .2183    1.0000    .0014     .0056     .1128     .0937     .7020
    1984    7527352      2740771     95103     34699     .2216    1.0000    .0013     .0054     .1123     .0933     .7042
    1985    7568753      2791201     98907     35435     .2248    1.0000    .0013     .0052     .1119     .0929     .7064
    1986    7636872      2840327    102171     35971     .2281    1.0000    .0013     .0050     .1114     .0925     .7086
    1987    7705604      2890316    105542     36516     .2314    1.0000    .0013     .0048     .1109     .0921     .7107
    1988    7774955      2941187    109025     37068     .2348    1.0000    .0012     .0046     .1105     .0917     .7129
    1989    7844930      2992951    112623     37629     .2384    1.0000    .0012     .0045     .1100     .0913     .7150
    1990    7915535      3045628    116339     38199     .2418    1.0000    .0012     .0043     .1096     .0910     .7171
    1991    7961445      3084611    119597     38772     .2452    1.0000    .0012     .0041     .1092     .0907     .7192
    1992    8007621      3124095    122946     39354     .2487    1.0000    .0012     .0039     .1088     .0904     .7213
    1993    8054065      3164082    126388     39945     .2524    1.0000    .0012     .0038     .1084     .0901     .7234
    1994    8100779      3204582    129927     40544     .2560    1.0000    .0012     .0036     .1080     .0898     .7256
    1995    8147764      3245601    133565     41153     .2596    1.0000    .0012     .0034     .1076     .0895     .7277
    1996    8195021      3287145    137305     41770     .2634    1.0000    .0012     .0033     .1072     .0892     .7298
    1997    8242552      3329220    141150     42397     .2672    1.0000    .0012     .0031     .1068     .0889     .7320
    1998    8290359      3371834    145102     43033     .2711    1.0000    .0012     .0030     .1065     .0886     .7341
    1999    8338443      3414993    149165     43679     .2749    1.0000    .0012     .0029     .1061     .0883     .7363
    2000    8386806      3458705    153341     44335     .2788    1.0000    .0012     .0027     .1057     .0881     .7384


ANNUAL RATES OF GROWTH
----------------------

1981-1985        .55%      1.84%     2.45%      .60%     1.48%      .00%   -1.84%    -3.51%     -.42%     -.45%      .31%
1985-1990        .90%      1.76%     3.30%     1.51%     1.47%      .00%   -1.59%    -3.73%     -.41%     -.41%      .30%
1990-1995        .58%      1.28%     2.80%     1.50%     1.43%      .00%     .00%    -4.59%     -.37%     -.33%      .29%
1995-2000        .58%      1.28%     2.80%     1.50%     1.44%      .00%     .00%    -4.51%     -.36%     -.31%      .29%

1981-2000        .66%      1.52%     2.86%     1.31%     1.45%      .00%    -.81%    -4.12%     -.39%     -.37%      .30%
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#37 -- ADDABBO - HEINZ SCENARIO                                                              FRI, MAY 13, 1983,  3:37 PM

NEW JER. (REGION=New York-New Jersey )

                                              ENERGY PRICES
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                           GAS                          ELECTRIC                      PETROLEUM
              ----------------------------  ---------------------------  ----------------------------
    YEAR      RESIDENT   COMMERC   INDUSTR   RESIDENT   COMMERC   INDUSTR   RESIDENT   COMMERC   INDUSTR       COAL       LPG
  --------    --------   --------  --------  --------   --------  --------  --------   --------  --------    --------  --------
              -------( $1981/MMBTU)-------($1981/KWH) ----( INDEX)------($1981/GAL) -----( INDEX)-----   ( INDEX)($1981/GAL)

    1981        5.92      5.48      4.50      .0947      .0946     .0557    1.2050     100.00    100.00     100.00     .4800
    1982        6.48      6.04      5.06      .0977      .0976     .0574    1.1027      91.51     91.51     103.00     .5050
    1983        6.61      6.17      5.19      .0975      .0975     .0573     .9820      81.49     81.49     106.09     .5312
    1984        6.55      6.11      5.13      .1001      .1000     .0589     .9530      79.15     79.15     109.27     .5588
    1985        6.39      5.95      4.97      .1015      .1014     .0597     .9376      77.81     77.81     112.55     .5879
    1986        6.40      5.96      4.98      .1008      .1007     .0592     .9442      78.36     78.36     115.93     .6185
    1987        6.63      6.19      5.21      .1040      .1039     .0611     .9508      78.91     78.91     119.41     .6506
    1988        7.04      6.60      5.62      .1023      .1022     .0601     .9575      79.46     79.46     122.99     .6845
    1989        7.49      7.05      6.07      .1022      .1021     .0601     .9642      80.01     80.01     126.68     .7201
    1990        7.82      7.38      6.40      .1031      .1030     .0606     .9709      80.58     80.58     130.48     .7575
    1991        7.98      7.54      6.56      .1046      .1045     .0615     .9826      81.54     81.54     134.39     .7969
    1992        7.97      7.53      6.55      .1020      .1019     .0600     .9944      82.52     82.52     138.42     .8383
    1993        7.92      7.48      6.50      .0989      .0988     .0582    1.0063      83.51     83.51     142.58     .8819
    1994        8.00      7.56      6.58      .0960      .0960     .0565    1.0184      84.51     84.51     146.85     .9278
    1995        8.14      7.70      6.72      .0909      .0909     .0535    1.0306      85.53     85.53     151.26     .9760
    1996        8.37      7.93      6.95      .0884      .0884     .0520    1.0512      87.24     87.24     155.80    1.0268
    1997        8.60      8.16      7.18      .0871      .0870     .0512    1.0722      88.98     88.98     160.47    1.0802
    1998        8.83      8.39      7.41      .0852      .0851     .0501    1.0937      90.76     90.76     165.28    1.1363
    1999        9.10      8.66      7.68      .0844      .0843     .0496    1.1156      92.58     92.58     170.24    1.1954
    2000        9.39      8.95      7.97      .0828      .0827     .0487    1.1379      94.43     94.43     175.35    1 2576


ANNUAL RATES OF GROWTH
----------------------

1981-1985       1.93%     2.08%     2.51%     1.74%      1.74%     1.74%    -6.08%     -6.08%    -6.08%      3.00%     5.20%
1985-1990       4.12%     4.40%     5.19%      .31%       .31%      .31%      .70%       .70%      .70%      3.00%     5.20%
1990-1995        .81%      .85%      .98%    -2.47%     -2.47%    -2.47%     1.20%      1.20%     1.20%      3.00%     5.20%
1995-2000       2.90%     3.05%     3.47%    -1.86%     -1.86%    -1.86%     2.00%      2.00%     2.00%      3.00%     5.20%

1981-2000       2.46%     2.62%     3.05%     -.71%      -.71%     -.71%     -.30%      -.30%     -.30%      3.00%     5.20%
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037 -- ADDABBO - HEINZ SCENARIO                                                         FRI, MAY 13, 1983,  3:37 PM

NEW JER. (REGION=New York-New Jersey )

                                       VALUE ADDED INDEXES BY 2-DIGIT SIC
                                       ----------------------------------

                                                                                  PRIMARY  FABRIC.           ELECTRIC
YEAR      FOOD  TEXTILE   LUMBER    PAPER CHEMICAL   PETROL   RUBBER    STONE    METAL    METAL  MACHINE  MACHINE   TRANSP    OTHER
----   -------  -------  -------  -------  -------  -------  -------  -------  -------  -------  -------  -------  -------  -------
1981      1.00     1.00     1.00     1.00     1.00     1.00     1.00     1.00     1.00     1.00     1.00     1.00     1.00     1.00
1982       .99      .89      .91      .93      .88     1.01      .90      .85      .65      .82      .81      .95      .95      .92
1983      1.01      .93      .94      .97      .92     1.02      .95      .88      .69      .85      .86     1.00      .98      .98
1984      1.04      .97      .97     1.01      .95     1.04     1.00      .92      .73      .89      .91     1.05     1.01     1.04
1985      1.07     1.01     1.01     1.05      .99     1.05     1.06      .96      .77      .92      .96     1.10     1.04     1.10
1986      1.10     1.06     1.05     1.10     1.05     1.05     1.13     1.01      .81      .96     1.02     1.18     1.09     1.14
1987      1.12     1.11     1.09     1.15     1.11     1.05     1.20     1.07      .84     1.00     1.08     1.26     1.14     1.17
1988      1.15     1.17     1.13     1.20     1.18     1.05     1.28     1.14      .87     1.04     1.15     1.34     1.19     1.21
1989      1.18     1.23     1.17     1.26     1.25     1.05     1.36     1.21      .91     1.08     1.22     1.43     1.24     1.25
1990      1.21     1.29     1.22     1.32     1.32     1.05     1.45     1.28      .94     1.12     1.29     1.53     1.30     1.29
1991      1.24     1.34     1.26     1.36     1.38     1.05     1.54     1.33      .98     1.15     1.35     1.60     1.33     1.33
1992      1.27     1.40     1.30     1.41     1.43     1.05     1.64     1.39     1.01     1.19     1.41     1.67     1.36     1.36
1993      1.31     1.46     1.34     1.46     1.49     1.05     1.75     1.45     1.05     1.22     1.47     1.75     1.39     1.40
1994      1.34     1.52     1.38     1.50     1.54     1.05     1.86     1.51     1.09     1.25     1.54     1.83     1.42     1.44
1995      1.38     1.59     1.43     1.56     1.60     1.04     1.98     1.57     1.12     1.29     1.61     1.91     1.45     1.48
1996      1.41     1.66     1.47     1.61     1.67     1.04     2.08     1.62     1.16     1.32     1.68     2.00     1.48     1.52
1997      1.45     1.73     1.52     1.66     1.74     1.04     2.18     1.68     1.21     1.36     1.76     2.09     1.51     1.56
1998      1.49     1.80     1.57     1.72     1.81     1.04     2.28     1.73     1.25     1.40     1.84     2.18     1.55     1.60
1999      1.53     1.88     1.62     1.78     1.88     1.04     2.39     1.79     1.29     1.44     1.92     2.28     1.58     1.65
2000      1.56     1.96     1.67     1.84     1.96     1.03     2.51     1.85     1.34     1.48     2.00     2.38     1.62     1.70


ANNUAL RATES OF GROWTH
----------------------

1981-1985 1.71%     .25%     .25%    1.23%    -.25%    1.23%    1.47%   -1.02%   -6.33%   -2.06%   -1.02%    2.41%     .99%    2.41%
1985-1990 2.49%    5.02%    3.85%    4.68%    5.92%     .00%    6.47%    5.92%    4.07%    4.01%    6.09%    6.82%    4.56%    3.24%
1990-1995 2.66%    4.27%    3.23%    3.40%    3.92%    -.19%    6.43%    4.17%    3.57%    2.87%    4.53%    4.54%    2.21%    2.79%
1995-2000 2.48%    4.27%    3.15%    3.36%    4.14%    -.19%    4.86%    3.34%    3.65%    2.79%    4.43%    4.50%    2.24%    2.81%

1981-2000 2.37%    3.61%    2.74%    3.26%    3.61%     .16%    4.96%    3.29%    1.55%    2.08%    3.72%    4.67%    2.57%    2.83%
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#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

NEW JER. (REGION=New York-New Jersey)

WAGE INDEXES BY 2-DIGIT SIC

YEAR	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1981	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1982	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
1983	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
1984	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
1985	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08
1986	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
1987	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13
1988	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15
1989	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17
1990	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
1991	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22
1992	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24
1993	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27
1994	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29
1995	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32
1996	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35
1997	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37
1998	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40
1999	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43
2000	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46

ANNUAL RATES OF GROWTH

1981-1985	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1985-1990	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1990-1995	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1995-2000	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1981-2000	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%

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#37 -- ADDABBO - HEINZ SCENARIO                                                          FRI, MAY 13, 1983,  3:37 PM

NEW MEX. (REGION=Southwest            )

                                                        DEMOGRAPHIC DATA
                                                        ----------------

                                                                                 --RATIO OF TOTAL COMMERCIAL ACTIVITY--
                                 HOUSE-   PERSONAL                          URBAN  --------------------------------------   NON-MFG/
    YEAR    PEOPLE       HOLDS     INCOME  INCOME/HH       APTS     RATIO    MINING  AGRICULT    TRANSP CONSTRUCT   TOT EARN
 --------  --------   --------   --------  --------   --------  --------  --------  --------  --------  --------   --------
                               ($000,000) ($1981/HH) ----------------------------(RATIOS)-------------------------------------
     1981   1318615     453393      11324     24976      .1159    1.0000     .0513     .0559     .0733     .9337     1.0000
     1982   1338526     466133      11154     23929      .1176    1.0000     .0501     .0546     .0732     .9335     1.0000
     1983   1358738     479232      11489     23973      .1192    1.0000     .0489     .0533     .0731     .9333     1.0000
     1984   1379255     492698      11994     24344      .1210    1.0000     .0478     .0520     .0730     .9331     1.0000
     1985   1400082     506542      12474     24626      .1228    1.0000     .0466     .0508     .0729     .9329     1.0000
     1986   1415482     516521      12886     24947      .1247    1.0000     .0455     .0496     .0727     .9327     1.0000
     1987   1431053     526697      13311     25272      .1265    1.0000     .0445     .0485     .0726     .9325     1.0000
     1988   1446794     537073      13750     25602      .1284    1.0000     .0434     .0473     .0725     .9323     1.0000
     1989   1462709     547653      14204     25936      .1304    1.0000     .0424     .0462     .0724     .9321     1.0000
     1990   1478798     558442      14673     26274      .1323    1.0000     .0414     .0451     .0723     .9319     1.0000
     1991   1491664     567209      15083     26592      .1342    1.0000     .0404     .0440     .0722     .9317     1.0000
     1992   1504642     576115      15506     26914      .1363    1.0000     .0395     .0430     .0721     .9315     1.0000
     1993   1517731     585160      15940     27240      .1382    1.0000     .0385     .0420     .0720     .9313     1.0000
     1994   1530936     594347      16386     27570      .1403    1.0000     .0376     .0410     .0719     .9311     1.0000
     1995   1544255     603679      16845     27904      .1424    1.0000     .0367     .0400     .0718     .9309     1.0000
     1996   1557690     613156      17317     28242      .1445    1.0000     .0359     .0390     .0717     .9307     1.0000
     1997   1571242     622783      17802     28584      .1466    1.0000     .0350     .0381     .0716     .9305     1.0000
     1998   1584912     632560      18300     28930      .1489    1.0000     .0342     .0372     .0715     .9303     1.0000
     1999   1598700     642492      18813     29281      .1510    1.0000     .0334     .0363     .0714     .9301     1.0000
     2000   1612609     652579      19339     29635      .1532    1.0000     .0326     .0354     .0713     .9299     1.0000


 ANNUAL RATES OF GROWTH
 ----------------------

 1981-1985    1.51%      2.81%      2.45%     -.35%      1.46%      .00%    -2.37%    -2.36%     -.14%     -.02%       .00%
 1985-1990    1.10%      1.97%      3.30%     1.30%      1.50%      .00%    -2.34%    -2.35%     -.17%     -.02%       .00%
 1990-1995     .87%      1.57%      2.80%     1.21%      1.48%      .00%    -2.38%    -2.37%     -.14%     -.02%       .00%
 1995-2000     .87%      1.57%      2.80%     1.21%      1.47%      .00%     2.34%    -2.41%     -.14%     -.02%       .00%

 1981-2000    1.06%      1.94%      2.86%      .90%      1.48%      .00%    -2.36%    -2.38%     -.15%     -.02%       .00%
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#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

NEW MEX. (REGION=Southwest)

ENERGY PRICES

	GAS			ELECTRIC			PETROLEUM				
YEAR	RESIDENT	COMMERC	INDUSTR	RESIDENT	COMMERC	INDUSTR	RESIDENT	COMMERC	INDUSTR	COAL	LPG
	($1981/MMBTU)			($1981/KWH)	(INDEX)		($1981/GAL)	(INDEX)		(INDEX)	($1981/GAL)
1981	3.65	3.33	2.87	.0594	.0552	.0394	1.2050	100.00	100.00	100.00	.4800
1982	4.21	3.89	3.43	.0684	.0635	.0454	1.1027	91.51	91.51	103.00	.5050
1983	4.34	4.02	3.56	.0716	.0665	.0475	.9820	81.49	81.49	106.09	.5312
1984	4.28	3.96	3.50	.0760	.0706	.0504	.9538	79.15	79.15	109.27	.5588
1985	4.12	3.80	3.34	.0799	.0742	.0530	.9376	77.81	77.81	112.55	.5879
1986	4.13	3.81	3.35	.0827	.0768	.0548	.9442	78.36	78.36	115.93	.6185
1987	4.36	4.04	3.58	.0831	.0772	.0551	.9508	78.91	78.91	119.41	.6506
1988	4.77	4.45	3.99	.0841	.0781	.0558	.9575	79.46	79.46	122.99	.6845
1989	5.22	4.90	4.44	.0855	.0794	.0567	.9642	80.01	80.01	126.68	.7201
1990	5.55	5.23	4.77	.0861	.0800	.0571	.9709	80.58	80.58	130.48	.7575
1991	5.71	5.39	4.93	.0875	.0813	.0580	.9826	81.54	81.54	134.39	.7969
1992	5.70	5.38	4.92	.0894	.0830	.0593	.9944	82.52	82.52	138.42	.8383
1993	5.65	5.33	4.87	.0811	.0753	.0538	1.0063	83.51	83.51	142.58	.8819
1994	5.73	5.41	4.95	.0899	.0835	.0596	1.0184	84.51	84.51	146.85	.9278
1995	5.87	5.55	5.09	.0806	.0749	.0535	1.0306	85.53	85.53	151.26	.9760
1996	6.10	5.78	5.32	.0884	.0821	.0587	1.0512	87.24	87.24	155.80	1.0268
1997	6.33	6.01	5.55	.0806	.0748	.0534	1.0722	88.98	88.98	160.47	1.0802
1998	6.56	6.24	5.78	.0884	.0821	.0586	1.0937	90.76	90.76	165.28	1.1363
1999	6.83	6.51	6.05	.0810	.0752	.0537	1.1156	92.58	92.58	170.24	1.1954
2000	7.12	6.80	6.34	.0871	.0809	.0577	1.1379	94.43	94.43	175.35	1.2576

ANNUAL RATES OF GROWTH

1981-1985	3.07%	3.36%	3.86%	7.68%	7.68%	7.68%	-6.00%	-6.00%	-6.00%	3.00%	5.20%
1985-1990	6.14%	6.60%	7.39%	1.51%	1.51%	1.51%	.70%	.70%	.70%	3.00%	5.20%
1990-1995	1.13%	1.19%	1.31%	-1.31%	-1.31%	-1.31%	1.20%	1.20%	1.20%	3.00%	5.20%
1995-2000	3.94%	4.15%	4.49%	1.55%	1.55%	1.56%	2.00%	2.00%	2.00%	3.00%	5.20%
1981-2000	3.58%	3.83%	4.26%	2.03%	2.03%	2.03%	-.30%	-.30%	-.30%	3.00%	5.20%

837 -- ADDABBO - HEINZ SCENARIO

FRI, MAY 13, 1983, 3:37 PM

NEW MEX. (REGION=Southwest)

VALUE ADDED INDEXES BY 2-DIGIT SIC

YEAR	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1981	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1982	.99	.89	.91	.93	.88	1.01	.90	.85	.65	.82	.81	.95	.95	.92
1983	1.01	.93	.94	.97	.92	1.02	.95	.88	.69	.85	.86	1.00	.98	.98
1984	1.04	.97	.97	1.01	.95	1.04	1.00	.92	.73	.89	.91	1.05	1.01	1.04
1985	1.07	1.01	1.01	1.05	.99	1.05	1.06	.96	.77	.92	.96	1.10	1.04	1.10
1986	1.10	1.06	1.05	1.10	1.05	1.05	1.13	1.01	.81	.96	1.02	1.18	1.09	1.14
1987	1.12	1.11	1.09	1.15	1.11	1.05	1.20	1.07	.84	1.00	1.08	1.26	1.14	1.17
1988	1.15	1.17	1.13	1.20	1.18	1.05	1.28	1.14	.87	1.04	1.15	1.34	1.19	1.21
1989	1.18	1.23	1.17	1.26	1.25	1.05	1.36	1.21	.91	1.08	1.22	1.43	1.24	1.25
1990	1.21	1.29	1.22	1.32	1.32	1.05	1.45	1.28	.94	1.12	1.29	1.53	1.30	1.29
1991	1.24	1.34	1.26	1.36	1.38	1.05	1.54	1.33	.98	1.15	1.35	1.60	1.33	1.33
1992	1.27	1.40	1.30	1.41	1.43	1.05	1.64	1.39	1.01	1.19	1.41	1.67	1.36	1.36
1993	1.31	1.46	1.34	1.46	1.49	1.05	1.75	1.45	1.05	1.22	1.47	1.75	1.39	1.40
1994	1.34	1.52	1.38	1.50	1.54	1.05	1.86	1.51	1.09	1.25	1.54	1.83	1.42	1.44
1995	1.38	1.59	1.43	1.56	1.60	1.04	1.98	1.57	1.12	1.29	1.61	1.91	1.45	1.48
1996	1.41	1.66	1.47	1.61	1.67	1.04	2.08	1.62	1.16	1.32	1.68	2.00	1.48	1.52
1997	1.45	1.73	1.52	1.66	1.74	1.04	2.18	1.68	1.21	1.36	1.76	2.09	1.51	1.56
1998	1.49	1.80	1.57	1.72	1.81	1.04	2.28	1.73	1.25	1.40	1.84	2.18	1.55	1.60
1999	1.53	1.88	1.62	1.78	1.88	1.04	2.39	1.79	1.29	1.44	1.92	2.28	1.58	1.65
2000	1.56	1.96	1.67	1.84	1.96	1.03	2.51	1.85	1.34	1.48	2.00	2.38	1.62	1.70

ANNUAL RATES OF GROWTH

1981-1985	1.71%	.25%	.25%	1.23%	-.25%	1.23%	1.47%	-1.02%	-6.33%	-2.06%	-1.02%	2.41%	.99%	2.41%
1985-1990	2.49%	5.02%	3.85%	4.68%	5.92%	.00%	6.47%	5.92%	4.07%	4.01%	6.09%	6.82%	4.56%	3.24%
1990-1995	2.66%	4.27%	3.23%	3.40%	3.92%	-.19%	6.43%	4.17%	3.57%	2.87%	4.53%	4.54%	2.21%	2.79%
1995-2000	2.48%	4.27%	3.15%	3.36%	4.14%	-.19%	4.86%	3.34%	3.65%	2.79%	4.43%	4.58%	2.24%	2.81%
1981-2000	2.37%	3.61%	2.74%	3.26%	3.61%	.16%	4.96%	3.29%	1.55%	2.08%	3.72%	4.67%	2.57%	2.83%

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037 -- ADDABBO - HEINZ SCENARIO                                          FRI, MAY 13, 1983,  3:37 PM

NEW MEX. (REGION=Southwest           )

                                   WAGE INDEXES BY 2-DIGIT SIC
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                                                                                 PRIMARY  FABRIC.           ELECTRIC
YEAR      FOOD  TEXTILE   LUMBER     PAPER CHEMICAL   PETROL   RUBBER    STONE    METAL    METAL  MACHINE  MACHINE   TRANSP    OTHER
----   -------  -------  -------   -------  -------  -------  -------  -------  -------  -------  -------  -------  -------  -------
1981      1.00     1.00     1.00      1.00     1.00     1.00     1.00     1.00     1.00     1.00     1.00     1.00     1.00     1.00
1982      1.02     1.02     1.02      1.02     1.02     1.02     1.02     1.02     1.02     1.02     1.02     1.02     1.02     1.02
1983      1.04     1.04     1.04      1.04     1.04     1.04     1.04     1.04     1.04     1.04     1.04     1.04     1.04     1.04
1984      1.06     1.06     1.06      1.06     1.06     1.06     1.06     1.06     1.06     1.06     1.06     1.06     1.06     1.06
1985      1.08     1.08     1.08      1.08     1.08     1.08     1.08     1.08     1.08     1.08     1.08     1.08     1.08     1.08
1986      1.10     1.10     1.10      1.10     1.10     1.10     1.10     1.10     1.10     1.10     1.10     1.10     1.10     1.10
1987      1.13     1.13     1.13      1.13     1.13     1.13     1.13     1.13     1.13     1.13     1.13     1.13     1.13     1.13
1988      1.15     1.15     1.15      1.15     1.15     1.15     1.15     1.15     1.15     1.15     1.15     1.15     1.15     1.15
1989      1.17     1.17     1.17      1.17     1.17     1.17     1.17     1.17     1.17     1.17     1.17     1.17     1.17     1.17
1990      1.20     1.20     1.20      1.20     1.20     1.20     1.20     1.20     1.20     1.20     1.20     1.20     1.20     1.20
1991      1.22     1.22     1.22      1.22     1.22     1.22     1.22     1.22     1.22     1.22     1.22     1.22     1.22     1.22
1992      1.24     1.24     1.24      1.24     1.24     1.24     1.24     1.24     1.24     1.24     1.24     1.24     1.24     1.24
1993      1.27     1.27     1.27      1.27     1.27     1.27     1.27     1.27     1.27     1.27     1.27     1.27     1.27     1.27
1994      1.29     1.29     1.29      1.29     1.29     1.29     1.29     1.29     1.29     1.29     1.29     1.29     1.29     1.29
1995      1.32     1.32     1.32      1.32     1.32     1.32     1.32     1.32     1.32     1.32     1.32     1.32     1.32     1.32
1996      1.35     1.35     1.35      1.35     1.35     1.35     1.35     1.35     1.35     1.35     1.35     1.35     1.35     1.35
1997      1.37     1.37     1.37      1.37     1.37     1.37     1.37     1.37     1.37     1.37     1.37     1.37     1.37     1.37
1998      1.40     1.40     1.40      1.40     1.40     1.40     1.40     1.40     1.40     1.40     1.40     1.40     1.40     1.40
1999      1.43     1.43     1.43      1.43     1.43     1.43     1.43     1.43     1.43     1.43     1.43     1.43     1.43     1.43
2000      1.46     1.46     1.46      1.46     1.46     1.46     1.46     1.46     1.46     1.46     1.46     1.46     1.46     1.46


ANNUAL RATES OF GROWTH
----------------------

1981-1985 2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%
1985-1990 2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%
1990-1995 2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%
1995-2000 2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%

1981-2000 2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%
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#37 -- ADDABBO - HEINZ SCENARIO

FRI, MAY 13, 1983, 3:37 PM

NY-EAST (REGION=New York-New Jersey)

DEMOGRAPHIC DATA

YEAR	PEOPLE	HOUSE-HOLDS	PERSONAL INCOME	INCOME/HH	APTS	URBAN RATIO	--RATIO OF TOTAL COMMERCIAL ACTIVITY-- MINING	AGRICULT	TRANSP	CONSTRUCT	NON-MFG/TOT EARN
			($000,000)	($1981/HH)	(RATIOS)						
1981	10710840	3891765	11324	2910	.4392	1.0000	.0015	.0076	.1019	.0681	.7009
1982	10711910	3916283	11154	2848	.4457	1.0000	.0014	.0074	.1012	.0678	.7030
1983	10712980	3940955	11489	2915	.4523	1.0000	.0014	.0072	.1006	.0675	.7050
1984	10714050	3965783	11994	3024	.4589	1.0000	.0014	.0070	.0999	.0672	.7070
1985	10715120	3990769	12474	3126	.4657	1.0000	.0013	.0068	.0993	.0669	.7089
1986	10719406	4005534	12886	3217	.4726	1.0000	.0013	.0066	.0987	.0666	.7909
1987	10723694	4020354	13311	3311	.4796	1.0000	.0013	.0064	.0981	.0663	.7928
1988	10727984	4035230	13750	3408	.4866	1.0000	.0013	.0063	.0975	.0660	.7948
1989	10732276	4050160	14204	3507	.4938	1.0000	.0012	.0061	.0969	.0657	.7967
1990	10736570	4065146	14673	3609	.5011	1.0000	.0012	.0059	.0963	.0654	.7986
1991	10734422	4078154	15083	3699	.5085	1.0000	.0012	.0057	.0957	.0651	.8005
1992	10732274	4091205	15506	3790	.5160	1.0000	.0012	.0055	.0951	.0648	.8024
1993	10730128	4104297	15940	3884	.5237	1.0000	.0012	.0053	.0945	.0645	.8043
1994	10727982	4117431	16386	3980	.5314	1.0000	.0012	.0052	.0939	.0642	.8062
1995	10725836	4130607	16845	4078	.5393	1.0000	.0012	.0050	.0934	.0639	.8082
1996	10723690	4143825	17317	4179	.5472	1.0000	.0012	.0048	.0928	.0636	.8101
1997	10721544	4157085	17802	4282	.5553	1.0000	.0012	.0047	.0922	.0633	.8120
1998	10719398	4170388	18300	4388	.5635	1.0000	.0012	.0045	.0916	.0630	.8140
1999	10717254	4183734	18813	4497	.5719	1.0000	.0012	.0044	.0911	.0628	.8159
2000	10715110	4197122	19339	4608	.5803	1.0000	.0012	.0042	.0905	.0625	.8179

ANNUAL RATES OF GROWTH

1981-1985	.01%	.63%	2.45%	1.81%	1.48%	.00%	-3.51%	-2.74%	-.64%	-.44%	.26%
1985-1990	.04%	.37%	3.30%	2.92%	1.48%	.00%	-1.59%	-2.80%	-.61%	-.45%	.24%
1990-1995	-.02%	.32%	2.80%	2.47%	1.48%	.00%	.00%	-3.26%	-.61%	-.46%	.24%
1995-2000	-.02%	.32%	2.80%	2.47%	1.48%	.00%	.00%	-3.43%	-.63%	-.44%	.24%
1981-2000	.00%	.40%	2.86%	2.45%	1.48%	.00%	-1.17%	-3.07%	-.62%	-.45%	.24%

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037 -- ADDABBO - HEINZ SCENARIO                                                          FRI, MAY 13, 1983,  3:37 PM

NY-EAST  (REGION=New York-New Jersey )

                                              ENERGY PRICES
                                              -------------

                               GAS                               ELECTRIC                            PETROLEUM
                ----------------------------  ----------------------------  ----------------------------
    YEAR      RESIDENT   COMMERC    INDUSTR   RESIDENT   COMMERC    INDUSTR   RESIDENT   COMMERC    INDUSTR       COAL        LPG
  --------    --------   --------   --------  --------   --------   --------  --------   --------   --------   ---------   --------
              -------( $1981/MMBTU)-------($1981/KWH) ----( INDEX)------($1981/GAL) -----( INDEX)-----  ( INDEX)($1981/GAL)

    1981        5.20       4.49       3.90     .0947      .0946      .0557     1.2050     100.00     100.00     100.00      .4800
    1982        5.76       5.05       4.46     .0977      .0976      .0574     1.1027      91.51      91.51     103.00      .5050
    1983        5.09       5.10       4.59     .0975      .0975      .0573      .9820      81.49      81.49     106.09      .5312
    1984        5.03       5.12       4.53     .1001      .1000      .0589      .9538      79.15      79.15     109.27      .5588
    1985        5.67       4.96       4.37     .1015      .1014      .0597      .9376      77.81      77.81     112.55      .5879
    1986        5.60       4.97       4.30     .1008      .1007      .0592      .9442      78.36      78.36     115.93      .6185
    1987        5.91       5.20       4.61     .1040      .1039      .0611      .9508      78.91      78.91     119.41      .6506
    1988        6.32       5.61       5.02     .1023      .1022      .0601      .9575      79.46      79.46     122.99      .6845
    1989        6.77       6.06       5.47     .1022      .1021      .0601      .9642      80.01      80.01     126.68      .7201
    1990        7.10       6.39       5.80     .1031      .1030      .0606      .9709      80.58      80.58     130.48      .7575
    1991        7.26       6.55       5.96     .1046      .1045      .0615      .9826      81.54      81.54     134.39      .7969
    1992        7.25       6.54       5.95     .1020      .1019      .0600      .9944      82.52      82.52     138.42      .8383
    1993        7.20       6.49       5.90     .0989      .0988      .0582     1.0063      83.51      83.51     142.58      .8819
    1994        7.20       6.57       5.98     .0960      .0960      .0565     1.0184      84.51      84.51     146.85      .9278
    1995        7.42       6.71       6.12     .0909      .0909      .0535     1.0306      85.53      85.53     151.26      .9760
    1996        7.65       6.94       6.35     .0884      .0884      .0520     1.0512      87.24      87.24     155.80     1.0268
    1997        7.88       7.17       6.58     .0871      .0870      .0512     1.0722      88.98      88.98     160.47     1.0802
    1998        8.11       7.40       6.81     .0852      .0851      .0501     1.0937      90.76      90.76     165.28     1.1363
    1999        8.30       7.67       7.08     .0844      .0843      .0496     1.1156      92.58      92.58     170.24     1.1954
    2000        8.67       7.96       7.37     .0828      .0827      .0487     1.1379      94.43      94.43     175.35     1.2576


ANNUAL RATES OF GROWTH
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1981-1985       2.19%      2.52%      2.09%     1.74%      1.74%      1.74%     -6.08%     -6.08%     -6.08%      3.00%      5.20%
1985-1990       4.60%      5.20%      5.83%      .31%       .31%       .31%       .70%       .70%       .70%      3.00%      5.20%
1990-1995        .09%       .98%      1.08%    -2.47%     -2.47%     -2.47%      1.20%      1.20%      1.20%      3.00%      5.20%
1995-2000       3.16%      3.48%      3.79%    -1.06%     -1.06%     -1.06%      2.00%      2.00%      2.00%      3.00%      5.20%

1981-2000       2.73%      3.06%      3.41%     -.71%      -.71%      -.71%      -.30%      -.30%      -.30%      3.00%      5.20%
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037 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

NY-EAST (REGION=New York-New Jersey)

VALUE ADDED INDEXES BY 2-DIGIT SIC

YEAR	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1981	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1982	.99	.89	.91	.93	.88	1.01	.90	.85	.65	.82	.81	.95	.95	.92
1983	1.01	.93	.94	.97	.92	1.02	.95	.88	.69	.85	.86	1.00	.98	.98
1984	1.04	.97	.97	1.01	.95	1.04	1.00	.92	.73	.89	.91	1.05	1.01	1.04
1985	1.07	1.01	1.01	1.05	.99	1.05	1.06	.96	.77	.92	.96	1.10	1.04	1.10
1986	1.10	1.06	1.05	1.10	1.05	1.05	1.13	1.01	.81	.96	1.02	1.18	1.09	1.14
1987	1.12	1.11	1.09	1.15	1.11	1.05	1.20	1.07	.84	1.00	1.08	1.26	1.14	1.17
1988	1.15	1.17	1.13	1.20	1.18	1.05	1.28	1.14	.87	1.04	1.15	1.34	1.19	1.21
1989	1.18	1.23	1.17	1.26	1.25	1.05	1.36	1.21	.91	1.08	1.22	1.43	1.24	1.25
1990	1.21	1.29	1.22	1.32	1.32	1.05	1.45	1.28	.94	1.12	1.29	1.53	1.30	1.29
1991	1.24	1.34	1.26	1.36	1.38	1.05	1.54	1.33	.98	1.15	1.35	1.60	1.33	1.33
1992	1.27	1.40	1.30	1.41	1.43	1.05	1.64	1.39	1.01	1.19	1.41	1.67	1.36	1.36
1993	1.31	1.46	1.34	1.46	1.49	1.05	1.75	1.45	1.05	1.22	1.47	1.75	1.39	1.40
1994	1.34	1.52	1.38	1.50	1.54	1.05	1.86	1.51	1.09	1.25	1.54	1.83	1.42	1.44
1995	1.38	1.59	1.43	1.56	1.60	1.04	1.98	1.57	1.12	1.29	1.61	1.91	1.45	1.48
1996	1.41	1.66	1.47	1.61	1.67	1.04	2.08	1.62	1.16	1.32	1.68	2.00	1.48	1.52
1997	1.45	1.73	1.52	1.66	1.74	1.04	2.18	1.68	1.21	1.36	1.76	2.09	1.51	1.56
1998	1.49	1.80	1.57	1.72	1.81	1.04	2.28	1.73	1.25	1.40	1.84	2.18	1.55	1.60
1999	1.53	1.88	1.62	1.78	1.88	1.04	2.39	1.79	1.29	1.44	1.92	2.28	1.58	1.65
2000	1.56	1.96	1.67	1.84	1.96	1.03	2.51	1.85	1.34	1.48	2.00	2.38	1.62	1.70

ANNUAL RATES OF GROWTH

1981-1985	1.71%	.25%	.25%	1.23%	-.25%	1.23%	1.47%	-1.02%	-6.33%	-2.86%	-1.02%	2.41%	.99%	2.41%
1985-1990	2.49%	5.02%	3.85%	4.68%	5.92%	.00%	6.47%	5.92%	4.07%	4.01%	6.09%	6.82%	4.56%	3.24%
1990-1995	2.66%	4.27%	3.23%	3.40%	3.92%	-.19%	6.43%	4.17%	3.57%	2.87%	4.53%	4.54%	2.21%	2.79%
1995-2000	2.48%	4.27%	3.15%	3.36%	4.14%	-.19%	4.86%	3.34%	3.65%	2.79%	4.43%	4.50%	2.24%	2.81%
1981-2000	2.37%	3.61%	2.74%	3.26%	3.61%	.16%	4.96%	3.29%	1.55%	2.08%	3.72%	4.67%	2.57%	2.83%

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#37 -- ADDABBO - HEINZ SCENARIO                                                                     FRI, MAY 13, 1983,  3:37 PM

NY-EAST  (REGION=New York-New Jersey )

                                                WAGE INDEXES BY 2-DIGIT SIC
                                                ---------------------------

                                                                                PRIMARY  FABRIC.            ELECTRIC
YEAR      FOOD  TEXTILE    LUMBER     PAPER CHEMICAL    PETROL    RUBBER     STONE    METAL    METAL  MACHINE  MACHINE    TRANSP     OTHER
----   -------  -------   -------   -------  -------   -------   -------   -------  -------  -------  -------  -------   -------   -------
1981      1.00     1.00      1.00      1.00     1.00      1.00      1.00      1.00     1.00     1.00     1.00     1.00      1.00      1.00
1982      1.02     1.02      1.02      1.02     1.02      1.02      1.02      1.02     1.02     1.02     1.02     1.02      1.02      1.02
1983      1.04     1.04      1.04      1.04     1.04      1.04      1.04      1.04     1.04     1.04     1.04     1.04      1.04      1.04
1984      1.06     1.06      1.06      1.06     1.06      1.06      1.06      1.06     1.06     1.06     1.06     1.06      1.06      1.06
1985      1.08     1.08      1.08      1.08     1.08      1.08      1.08      1.08     1.08     1.08     1.08     1.08      1.08      1.08
1986      1.10     1.10      1.10      1.10     1.10      1.10      1.10      1.10     1.10     1.10     1.10     1.10      1.10      1.10
1987      1.13     1.13      1.13      1.13     1.13      1.13      1.13      1.13     1.13     1.13     1.13     1.13      1.13      1.13
1988      1.15     1.15      1.15      1.15     1.15      1.15      1.15      1.15     1.15     1.15     1.15     1.15      1.15      1.15
1989      1.17     1.17      1.17      1.17     1.17      1.17      1.17      1.17     1.17     1.17     1.17     1.17      1.17      1.17
1990      1.20     1.20      1.20      1.20     1.20      1.20      1.20      1.20     1.20     1.20     1.20     1.20      1.20      1.20
1991      1.22     1.22      1.22      1.22     1.22      1.22      1.22      1.22     1.22     1.22     1.22     1.22      1.22      1.22
1992      1.24     1.24      1.24      1.24     1.24      1.24      1.24      1.24     1.24     1.24     1.24     1.24      1.24      1.24
1993      1.27     1.27      1.27      1.27     1.27      1.27      1.27      1.27     1.27     1.27     1.27     1.27      1.27      1.27
1994      1.29     1.29      1.29      1.29     1.29      1.29      1.29      1.29     1.29     1.29     1.29     1.29      1.29      1.29
1995      1.32     1.32      1.32      1.32     1.32      1.32      1.32      1.32     1.32     1.32     1.32     1.32      1.32      1.32
1996      1.35     1.35      1.35      1.35     1.35      1.35      1.35      1.35     1.35     1.35     1.35     1.35      1.35      1.35
1997      1.37     1.37      1.37      1.37     1.37      1.37      1.37      1.37     1.37     1.37     1.37     1.37      1.37      1.37
1998      1.40     1.40      1.40      1.40     1.40      1.40      1.40      1.40     1.40     1.40     1.40     1.40      1.40      1.40
1999      1.43     1.43      1.43      1.43     1.43      1.43      1.43      1.43     1.43     1.43     1.43     1.43      1.43      1.43
2000      1.46     1.46      1.46      1.46     1.46      1.46      1.46      1.46     1.46     1.46     1.46     1.46      1.46      1.46


ANNUAL RATES OF GROWTH
----------------------

1981-1985 2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%
1985-1990 2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%
1990-1995 2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%
1995-2000 2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%

1981-2000 2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%     2.00%
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#37 -- ADDABBO - HEINZ SCENARIO   FRI, MAY 13, 1983, 3:37 PM

NY-WEST (REGION=New York-New Jersey)

DEMOGRAPHIC DATA

							--RATIO OF TOTAL COMMERCIAL ACTIVITY--				
YEAR	PEOPLE	HOUSE-HOLDS	PERSONAL INCOME	INCOME/HH	APTS	URBAN RATIO	MINING	AGRICULT	TRANSP	CONSTRUCT	NON-MFG/ TOT EARN
			($000,000)	($1981/HH)			(RATIOS)				
1981	6854077	2495595	11324	4538	.0676	1.0000	.0015	.0076	.0068	.0681	.7809
1982	6860931	2518804	11154	4428	.0686	1.0000	.0014	.0074	.0068	.0678	.7830
1983	6867790	2542230	11489	4519	.0696	1.0000	.0014	.0072	.0067	.0675	.7850
1984	6874657	2565873	11994	4675	.0706	1.0000	.0014	.0070	.0067	.0672	.7870
1985	6881531	2589736	12474	4817	.0717	1.0000	.0013	.0068	.0067	.0669	.7889
1986	6903551	2616927	12886	4924	.0727	1.0000	.0013	.0066	.0067	.0666	.7909
1987	6925644	2644406	13311	5034	.0738	1.0000	.0013	.0064	.0067	.0663	.7928
1988	6947805	2672173	13750	5146	.0749	1.0000	.0013	.0063	.0066	.0660	.7948
1989	6970038	2700229	14204	5260	.0760	1.0000	.0012	.0061	.0066	.0657	.7967
1990	6992342	2728582	14673	5377	.0771	1.0000	.0012	.0059	.0066	.0654	.7986
1991	7013318	2750683	15083	5484	.0782	1.0000	.0012	.0057	.0066	.0651	.8005
1992	7034358	2772963	15506	5592	.0793	1.0000	.0012	.0055	.0066	.0648	.8024
1993	7055461	2795426	15940	5702	.0805	1.0000	.0012	.0053	.0066	.0645	.8043
1994	7076628	2818068	16386	5815	.0817	1.0000	.0012	.0052	.0066	.0642	.8062
1995	7097858	2840895	16845	5930	.0828	1.0000	.0012	.0050	.0066	.0639	.8082
1996	7119152	2863907	17317	6047	.0840	1.0000	.0012	.0048	.0066	.0636	.8101
1997	7140511	2887104	17802	6166	.0853	1.0000	.0012	.0047	.0066	.0633	.8120
1998	7161933	2910491	18300	6288	.0865	1.0000	.0012	.0045	.0066	.0630	.8140
1999	7183419	2934066	18813	6412	.0877	1.0000	.0012	.0044	.0066	.0628	.8159
2000	7204968	2957832	19339	6538	.0890	1.0000	.0012	.0042	.0066	.0625	.8179

ANNUAL RATES OF GROWTH

1981-1985	.10%	.93%	2.45%	1.50%	1.48%	.00%	-3.51%	-2.74%	-.37%	-.44%	.26%
1985-1990	.32%	1.05%	3.30%	2.23%	1.46%	.00%	-1.59%	-2.80%	-.30%	-.45%	.24%
1990-1995	.30%	.81%	2.80%	1.97%	1.44%	.00%	.00%	-3.26%	.00%	-.46%	.24%
1995-2000	.30%	.81%	2.80%	1.97%	1.45%	.00%	.00%	-3.43%	.00%	-.44%	.24%
1981-2000	.26%	.90%	2.86%	1.94%	1.46%	.00%	-1.17%	-3.07%	-.16%	-.45%	.24%

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837 -- ADDABBO - HEINZ SCENARIO                                                          FRI, MAY 13, 1983,  3:37 PM

NY-WEST  (REGION=New York-New Jersey )

                                             ENERGY PRICES
                                             -------------

                           GAS                                 ELECTRIC                              PETROLEUM
             ----------------------------------  ----------------------------------  ----------------------------------
    YEAR     RESIDENT    COMMERC    INDUSTR    RESIDENT    COMMERC    INDUSTR    RESIDENT    COMMERC    INDUSTR        COAL         LPG
  --------   --------    --------   --------   --------    --------   --------   --------    --------   --------     --------    --------
             -------( $1981/MMBTU)-------($1981/KWH) ----( INDEX)------($1981/GAL) -----( INDEX)-----      ( INDEX)($1981/GAL)

    1981       3.84        3.58       3.32       .0947      .0946      .0557     1.2050      100.00     100.00       100.00       .4800
    1982       4.40        4.14       3.88       .0977      .0976      .0574     1.1027       91.51      91.51       103.00       .5050
    1983       4.53        4.27       4.01       .0975      .0975      .0573      .9820       81.49      81.49       106.09       .5312
    1984       4.47        4.21       3.95       .1001      .1000      .0589      .9538       79.15      79.15       109.27       .5588
    1985       4.31        4.05       3.79       .1015      .1014      .0597      .9376       77.81      77.81       112.55       .5879
    1986       4.32        4.06       3.80       .1008      .1007      .0592      .9442       78.36      78.36       115.93       .6185
    1987       4.55        4.29       4.03       .1040      .1039      .0611      .9508       78.91      78.91       119.41       .6506
    1988       4.96        4.70       4.44       .1023      .1022      .0601      .9575       79.46      79.46       122.99       .6845
    1989       5.41        5.15       4.89       .1022      .1021      .0601      .9642       80.01      80.01       126.68       .7201
    1990       5.74        5.48       5.22       .1031      .1030      .0606      .9709       80.58      80.58       130.48       .7575
    1991       5.90        5.64       5.38       .1046      .1045      .0615      .9826       81.54      81.54       134.39       .7969
    1992       5.89        5.63       5.37       .1020      .1019      .0600      .9944       82.52      82.52       138.42       .8383
    1993       5.84        5.58       5.32       .0989      .0988      .0582     1.0063       83.51      83.51       142.58       .8819
    1994       5.92        5.66       5.40       .0960      .0960      .0565     1.0184       84.51      84.51       146.85       .9278
    1995       6.06        5.80       5.54       .0909      .0909      .0535     1.0306       85.53      85.53       151.26       .9760
    1996       6.29        6.03       5.77       .0884      .0884      .0520     1.0512       87.24      87.24       155.80      1.0268
    1997       6.52        6.26       6.00       .0871      .0870      .0512     1.0722       88.98      88.98       160.47      1.0802
    1998       6.75        6.49       6.23       .0852      .0851      .0501     1.0937       90.76      90.76       165.28      1.1363
    1999       7.02        6.76       6.50       .0844      .0843      .0496     1.1156       92.58      92.58       170.24      1.1954
    2000       7.31        7.05       6.79       .0828      .0827      .0487     1.1379       94.43      94.43       175.35      1.2576


ANNUAL RATES OF GROWTH
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1981-1985      2.93%       3.13%      3.37%      1.74%      1.74%      1.74%     -6.08%      -6.08%     -6.08%       3.00%       5.20%
1985-1990      5.90%       6.23%      6.61%       .31%       .31%       .31%       .70%        .70%       .70%       3.00%       5.20%
1990-1995      1.09%       1.14%      1.20%     -2.47%     -2.47%     -2.47%      1.20%       1.20%      1.20%       3.00%       5.20%
1995-2000      3.82%       3.98%      4.15%     -1.86%     -1.86%     -1.86%      2.00%       2.00%      2.00%       3.00%       5.20%

1981-2000      3.45%       3.63%      3.84%      -.71%      -.71%      -.71%      -.30%       -.30%      -.30%       3.00%       5.20%
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#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

NY-WEST (REGION=New York-New Jersey)

VALUE ADDED INDEXES BY 2-DIGIT SIC

YEAR	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1981	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1982	.99	.89	.91	.93	.88	1.01	.90	.85	.65	.82	.81	.95	.95	.92
1983	1.01	.93	.94	.97	.92	1.02	.95	.88	.69	.85	.86	1.00	.98	.98
1984	1.04	.97	.97	1.01	.95	1.04	1.00	.92	.73	.89	.91	1.05	1.01	1.04
1985	1.07	1.01	1.01	1.05	.99	1.05	1.06	.96	.77	.92	.96	1.10	1.04	1.10
1986	1.10	1.06	1.05	1.10	1.05	1.05	1.13	1.01	.81	.96	1.02	1.18	1.09	1.14
1987	1.12	1.11	1.09	1.15	1.11	1.05	1.20	1.07	.84	1.00	1.08	1.26	1.14	1.17
1988	1.15	1.17	1.13	1.20	1.18	1.05	1.28	1.14	.87	1.04	1.15	1.34	1.19	1.21
1989	1.18	1.23	1.17	1.26	1.25	1.05	1.36	1.21	.91	1.08	1.22	1.43	1.24	1.25
1990	1.21	1.29	1.22	1.32	1.32	1.05	1.45	1.28	.94	1.12	1.29	1.53	1.30	1.29
1991	1.24	1.34	1.26	1.36	1.38	1.05	1.54	1.33	.98	1.15	1.35	1.60	1.33	1.33
1992	1.27	1.40	1.30	1.41	1.43	1.05	1.64	1.39	1.01	1.19	1.41	1.67	1.36	1.36
1993	1.31	1.46	1.34	1.46	1.49	1.05	1.75	1.45	1.05	1.22	1.47	1.75	1.39	1.40
1994	1.34	1.52	1.38	1.50	1.54	1.05	1.86	1.51	1.09	1.25	1.54	1.83	1.42	1.44
1995	1.38	1.59	1.43	1.56	1.60	1.04	1.98	1.57	1.12	1.29	1.61	1.91	1.45	1.48
1996	1.41	1.66	1.47	1.61	1.67	1.04	2.08	1.62	1.16	1.32	1.68	2.00	1.48	1.52
1997	1.45	1.73	1.52	1.66	1.74	1.04	2.18	1.68	1.21	1.36	1.76	2.09	1.51	1.56
1998	1.49	1.80	1.57	1.72	1.81	1.04	2.28	1.73	1.25	1.40	1.84	2.18	1.55	1.60
1999	1.53	1.88	1.62	1.78	1.88	1.04	2.39	1.79	1.29	1.44	1.92	2.28	1.58	1.65
2000	1.56	1.96	1.67	1.84	1.96	1.03	2.51	1.85	1.34	1.48	2.00	2.38	1.62	1.70

ANNUAL RATES OF GROWTH

1981-1985	1.71%	.25%	.25%	1.23%	-.25%	1.23%	1.47%	-1.02%	-6.33%	-2.06%	-1.02%	2.41%	.99%	2.41%
1985-1990	2.49%	5.02%	3.85%	4.68%	5.92%	.00%	6.47%	5.92%	4.07%	4.01%	6.09%	6.82%	4.56%	3.24%
1990-1995	2.66%	4.27%	3.23%	3.40%	3.92%	-.19%	6.43%	4.17%	3.57%	2.87%	4.53%	4.54%	2.21%	2.79%
1995-2000	2.48%	4.27%	3.15%	3.36%	4.14%	-.19%	4.86%	3.34%	3.65%	2.79%	4.43%	4.50%	2.24%	2.81%
1981-2000	2.37%	3.61%	2.74%	3.26%	3.61%	.16%	4.96%	3.29%	1.55%	2.08%	3.72%	4.67%	2.57%	2.83%

#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

NY-WEST <REGION=New York-New Jersey >

WAGE INDEXES BY 2-DIGIT SIC

YEAR	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1981	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1982	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
1983	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
1984	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
1985	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08
1986	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
1987	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13
1988	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15
1989	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17
1990	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
1991	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22
1992	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24
1993	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27
1994	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29
1995	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32
1996	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35
1997	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37
1998	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40
1999	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43
2000	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46

ANNUAL RATES OF GROWTH

1981-1985	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1985-1990	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1990-1995	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1995-2000	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1981-2000	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%

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037 -- ADDABBO - HEINZ SCENARIO                                                          FRI, MAY 13, 1983,  3:37 PM

N. CARO. (REGION=South Atlantic      )

                                                    DEMOGRAPHIC DATA
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                                                                          --RATIO OF TOTAL COMMERCIAL ACTIVITY--
                       HOUSE-  PERSONAL                          URBAN    -------------------------------------- NON-MFG/
    YEAR    PEOPLE      HOLDS    INCOME INCOME/HH      APTS      RATIO     MINING  AGRICULT    TRANSP CONSTRUCT  TOT EARN
 --------  --------  --------  -------- ---------  --------   --------   --------  --------  -------- ---------  --------
                               ($000,000) ($1981/HH) ---------------------------(RATIOS)---------------------------------
    1981   5932740   2087739     51494     24665     .0773     1.0000      .0027     .0588     .0907     .0860     .6602
    1982   5992067   2135540     50722     23751     .0784     1.0000      .0027     .0570     .0907     .0858     .6607
    1983   6051900   2184453     52243     23916     .0796     1.0000      .0026     .0553     .0908     .0856     .6611
    1984   6112500   2234477     54542     24409     .0808     1.0000      .0026     .0536     .0908     .0854     .6616
    1985   6173633   2285647     56724     24817     .0820     1.0000      .0025     .0520     .0909     .0852     .6620
    1986   6235906   2320309     58595     25166     .0832     1.0000      .0025     .0504     .0909     .0850     .6625
    1987   6298969   2371929     60529     25519     .0844     1.0000      .0024     .0488     .0910     .0848     .6629
    1988   6362500   2416204     62527     25877     .0857     1.0000      .0024     .0473     .0910     .0846     .6634
    1989   6426049   2461460     64590     26240     .0869     1.0000      .0023     .0459     .0911     .0844     .6638
    1990   6491759   2507497     66721     26609     .0882     1.0000      .0023     .0445     .0911     .0842     .6642
    1991   6556677   2550125     68590     26897     .0895     1.0000      .0023     .0431     .0911     .0840     .6646
    1992   6622244   2593476     70510     27188     .0910     1.0000      .0023     .0418     .0911     .0838     .6650
    1993   6688466   2637566     72484     27482     .0923     1.0000      .0023     .0406     .0911     .0836     .6654
    1994   6755351   2682404     74514     27779     .0937     1.0000      .0023     .0393     .0911     .0834     .6658
    1995   6822904   2728005     76600     28079     .0951     1.0000      .0023     .0381     .0911     .0832     .6662
    1996   6891133   2774381     78745     28383     .0965     1.0000      .0023     .0370     .0911     .0830     .6666
    1997   6960044   2821546     80950     28690     .0981     1.0000      .0023     .0358     .0911     .0828     .6670
    1998   7029644   2869511     83217     29000     .0995.    1.0000      .0023     .0347     .0911     .0826     .6674
    1999   7099940   2918293     85547     29314     .1010     1.0000      .0023     .0337     .0911     .0824     .6678
    2000   7170939   2967903     87942     29631     .1025     1.0000      .0023     .0326     .0911     .0822     .6682


ANNUAL RATES OF GROWTH
----------------------

1981-1985      1.00%     2.29%     2.45%      .15%     1.49%       .00%    -1.91%    -3.03%      .06%     -.23%      .07%
1985-1990      1.01%     1.87%     3.30%     1.40%     1.47%       .00%    -1.65%    -3.07%      .04%     -.24%      .07%
1990-1995      1.00%     1.70%     2.80%     1.08%     1.52%       .00%      .00%    -3.06%      .00%     -.24%      .06%
1995-2000      1.00%     1.70%     2.80%     1.08%     1.51%       .00%      .00%    -3.07%      .00%     -.24%      .06%

1981-2000      1.00%     1.87%     2.86%      .97%     1.50%       .00%     -.84%    -3.06%      .02%     -.24%      .06%
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#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

N. CARO. (REGION=South Atlantic)

ENERGY PRICES

	GAS			ELECTRIC			PETROLEUM				
YEAR	RESIDENT	COMMERC	INDUSTR	RESIDENT	COMMERC	INDUSTR	RESIDENT	COMMERC	INDUSTR	COAL	LPG
	($1981/MMBTU)			($1981/KWH)	(INDEX)		($1981/GAL)	(INDEX)		(INDEX)	($1981/GAL)
1981	5.01	4.66	4.26	.0524	.0517	.0368	1.2050	100.00	100.00	100.00	.4800
1982	5.57	5.22	4.82	.0598	.0590	.0420	1.1027	91.51	91.51	103.00	.5050
1983	5.70	5.35	4.95	.0593	.0585	.0416	.9820	81.49	81.49	106.09	.5312
1984	5.64	5.29	4.89	.0625	.0617	.0439	.9538	79.15	79.15	109.27	.5588
1985	5.48	5.13	4.73	.0633	.0625	.0445	.9376	77.81	77.81	112.55	.5879
1986	5.49	5.14	4.74	.0652	.0643	.0458	.9442	78.36	78.36	115.93	.6185
1987	5.72	5.37	4.97	.0637	.0628	.0447	.9508	78.91	78.91	119.41	.6506
1988	6.13	5.78	5.38	.0668	.0659	.0469	.9575	79.46	79.46	122.99	.6845
1989	6.58	6.23	5.83	.0681	.0672	.0479	.9642	80.01	80.01	126.68	.7201
1990	6.91	6.56	6.16	.0701	.0691	.0492	.9709	80.58	80.58	130.48	.7575
1991	7.07	6.72	6.32	.0697	.0687	.0489	.9826	81.54	81.54	134.39	.7969
1992	7.06	6.71	6.31	.0736	.0726	.0517	.9944	82.52	82.52	138.42	.8383
1993	7.01	6.66	6.26	.0684	.0675	.0480	1.0063	83.51	83.51	142.58	.8819
1994	7.09	6.74	6.34	.0749	.0739	.0526	1.0184	84.51	84.51	146.85	.9278
1995	7.23	6.88	6.48	.0678	.0669	.0477	1.0306	85.53	85.53	151.26	.9760
1996	7.46	7.11	6.71	.0740	.0730	.0520	1.0512	87.24	87.24	155.80	1.0268
1997	7.69	7.34	6.94	.0688	.0679	.0484	1.0722	88.98	88.98	160.47	1.0802
1998	7.92	7.57	7.17	.0745	.0735	.0524	1.0937	90.76	90.76	165.28	1.1363
1999	8.19	7.84	7.44	.0691	.0681	.0485	1.1156	92.58	92.58	170.24	1.1954
2000	8.48	8.13	7.73	.0735	.0725	.0517	1.1379	94.43	94.43	175.35	1.2576

ANNUAL RATES OF GROWTH

1981-1985	2.27%	2.43%	2.65%	4.84%	4.83%	4.83%	-6.08%	-6.08%	-6.08%	3.00%	5.20%
1985-1990	4.75%	5.04%	5.43%	2.05%	2.05%	2.05%	.70%	.70%	.70%	3.00%	5.20%
1990-1995	.91%	.96%	1.02%	-.65%	-.65%	-.65%	1.20%	1.20%	1.20%	3.00%	5.20%
1995-2000	3.24%	3.40%	3.59%	1.62%	1.63%	1.62%	2.00%	2.00%	2.00%	3.00%	5.20%
1981-2000	2.81%	2.97%	3.19%	1.80%	1.80%	1.80%	-.30%	-.30%	-.30%	3.00%	5.20%

037 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

N. CARO. (REGION=South Atlantic)

VALUE ADDED INDEXES BY 2-DIGIT SIC

YEAR	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1981	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1982	.99	.89	.91	.93	.88	1.01	.90	.85	.65	.82	.81	.95	.95	.92
1983	1.01	.93	.94	.97	.92	1.02	.95	.88	.69	.85	.86	1.00	.98	.98
1984	1.04	.97	.97	1.01	.95	1.04	1.00	.92	.73	.89	.91	1.05	1.01	1.04
1985	1.07	1.01	1.01	1.05	.99	1.05	1.06	.96	.77	.92	.96	1.10	1.04	1.10
1986	1.10	1.06	1.05	1.10	1.05	1.05	1.13	1.01	.81	.96	1.02	1.18	1.09	1.14
1987	1.12	1.11	1.09	1.15	1.11	1.05	1.20	1.07	.84	1.00	1.08	1.26	1.14	1.17
1988	1.15	1.17	1.13	1.20	1.18	1.05	1.28	1.14	.87	1.04	1.15	1.34	1.19	1.21
1989	1.18	1.23	1.17	1.26	1.25	1.05	1.36	1.21	.91	1.08	1.22	1.43	1.24	1.25
1990	1.21	1.29	1.22	1.32	1.32	1.05	1.45	1.28	.94	1.12	1.29	1.53	1.30	1.29
1991	1.24	1.34	1.26	1.36	1.38	1.05	1.54	1.33	.98	1.15	1.35	1.60	1.33	1.33
1992	1.27	1.40	1.30	1.41	1.43	1.05	1.64	1.39	1.01	1.19	1.41	1.67	1.36	1.36
1993	1.31	1.46	1.34	1.46	1.49	1.05	1.75	1.45	1.05	1.22	1.47	1.75	1.39	1.40
1994	1.34	1.52	1.38	1.50	1.54	1.05	1.86	1.51	1.09	1.25	1.54	1.83	1.42	1.44
1995	1.38	1.59	1.43	1.56	1.60	1.04	1.98	1.57	1.12	1.29	1.61	1.91	1.45	1.48
1996	1.41	1.66	1.47	1.61	1.67	1.04	2.08	1.62	1.16	1.32	1.68	2.00	1.48	1.52
1997	1.45	1.73	1.52	1.66	1.74	1.04	2.18	1.68	1.21	1.36	1.76	2.09	1.51	1.56
1998	1.49	1.80	1.57	1.72	1.81	1.04	2.28	1.73	1.25	1.40	1.84	2.18	1.55	1.60
1999	1.53	1.88	1.62	1.78	1.88	1.04	2.39	1.79	1.29	1.44	1.92	2.28	1.58	1.65
2000	1.56	1.96	1.67	1.84	1.96	1.03	2.51	1.85	1.34	1.48	2.00	2.38	1.62	1.70

ANNUAL RATES OF GROWTH

1981-1985	1.71%	.25%	.25%	1.23%	-.25%	1.23%	1.47%	-1.02%	-6.33%	-2.06%	-1.02%	2.41%	.99%	2.41%
1985-1990	2.49%	5.02%	3.85%	4.68%	5.92%	.00%	6.47%	5.92%	4.07%	4.01%	6.09%	6.82%	4.56%	3.24%
1990-1995	2.66%	4.27%	3.23%	3.40%	3.92%	-.19%	6.43%	4.17%	3.57%	2.87%	4.53%	4.54%	2.21%	2.79%
1995-2000	2.48%	4.27%	3.15%	3.36%	4.14%	-.19%	4.86%	3.34%	3.65%	2.79%	4.43%	4.50%	2.24%	2.81%
1981-2000	2.37%	3.61%	2.74%	3.26%	3.61%	.16%	4.96%	3.29%	1.55%	2.08%	3.72%	4.67%	2.57%	2.83%

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#37 -- ADDABBO - HEINZ SCENARIO                                                    FRI, MAY 13, 1983,  3:37 PM

N. CARO. (REGION=South Atlantic      )

                                          WAGE INDEXES BY 2-DIGIT SIC
                                          ---------------------------

                                                                              PRIMARY  FABRIC.           ELECTRIC
YEAR      FOOD  TEXTILE   LUMBER    PAPER CHEMICAL   PETROL   RUBBER    STONE    METAL    METAL  MACHINE  MACHINE    TRANSP    OTHER
----   -------  -------  -------  ------- --------  -------  -------  -------  -------  -------  -------  -------   -------  -------
1981      1.00     1.00     1.00     1.00     1.00     1.00     1.00     1.00     1.00     1.00     1.00     1.00      1.00     1.00
1982      1.02     1.02     1.02     1.02     1.02     1.02     1.02     1.02     1.02     1.02     1.02     1.02      1.02     1.02
1983      1.04     1.04     1.04     1.04     1.04     1.04     1.04     1.04     1.04     1.04     1.04     1.04      1.04     1.04
1984      1.06     1.06     1.06     1.06     1.06     1.06     1.06     1.06     1.06     1.06     1.06     1.06      1.06     1.06
1985      1.08     1.08     1.08     1.08     1.08     1.08     1.08     1.08     1.08     1.08     1.08     1.08      1.08     1.08
1986      1.10     1.10     1.10     1.10     1.10     1.10     1.10     1.10     1.10     1.10     1.10     1.10      1.10     1.10
1987      1.13     1.13     1.13     1.13     1.13     1.13     1.13     1.13     1.13     1.13     1.13     1.13      1.13     1.13
1988      1.15     1.15     1.15     1.15     1.15     1.15     1.15     1.15     1.15     1.15     1.15     1.15      1.15     1.15
1989      1.17     1.17     1.17     1.17     1.17     1.17     1.17     1.17     1.17     1.17     1.17     1.17      1.17     1.17
1990      1.20     1.20     1.20     1.20     1.20     1.20     1.20     1.20     1.20     1.20     1.20     1.20      1.20     1.20
1991      1.22     1.22     1.22     1.22     1.22     1.22     1.22     1.22     1.22     1.22     1.22     1.22      1.22     1.22
1992      1.24     1.24     1.24     1.24     1.24     1.24     1.24     1.24     1.24     1.24     1.24     1.24      1.24     1.24
1993      1.27     1.27     1.27     1.27     1.27     1.27     1.27     1.27     1.27     1.27     1.27     1.27      1.27     1.27
1994      1.29     1.29     1.29     1.29     1.29     1.29     1.29     1.29     1.29     1.29     1.29     1.29      1.29     1.29
1995      1.32     1.32     1.32     1.32     1.32     1.32     1.32     1.32     1.32     1.32     1.32     1.32      1.32     1.32
1996      1.35     1.35     1.35     1.35     1.35     1.35     1.35     1.35     1.35     1.35     1.35     1.35      1.35     1.35
1997      1.37     1.37     1.37     1.37     1.37     1.37     1.37     1.37     1.37     1.37     1.37     1.37      1.37     1.37
1998      1.40     1.40     1.40     1.40     1.40     1.40     1.40     1.40     1.40     1.40     1.40     1.40      1.40     1.40
1999      1.43     1.43     1.43     1.43     1.43     1.43     1.43     1.43     1.43     1.43     1.43     1.43      1.43     1.43
2000      1.46     1.46     1.46     1.46     1.46     1.46     1.46     1.46     1.46     1.46     1.46     1.46      1.46     1.46


ANNUAL RATES OF GROWTH
----------------------

1981-1985 2.00%   2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%     2.00%    2.00%
1985-1990 2.00%   2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%     2.00%    2.00%
1990-1995 2.00%   2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%     2.00%    2.00%
1995-2000 2.00%   2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%     2.00%    2.00%

1981-2000 2.00%   2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%     2.00%    2.00%
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037 -- ADDABBO - HEINZ SCENARIO                                                                          FRI, MAY 13, 1983,  3:37 PM

N. DAK.  (REGION=North Central        )

                                                          DEMOGRAPHIC DATA
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                                                                                --RATIO OF TOTAL COMMERCIAL ACTIVITY--
                             HOUSE-   PERSONAL                              URBAN  --------------------------------------  NON-MFG/
    YEAR      PEOPLE        HOLDS     INCOME   INCOME/HH       APTS        RATIO    MINING   AGRICULT     TRANSP CONSTRUCT  TOT EARN
 --------   --------     --------   --------   --------    --------     --------  --------   --------   -------- --------   --------
                                  ($000,000) ($1981/HH) ---------------------------(RATIOS)-------------------------------------
    1981      657008       231989       6725      28988       .1494       1.0000     .0086      .2044      .0728     .0639      .9423
    1982      660030       236050       6624      28062       .1517       1.0000     .0085      .2017      .0725     .0638      .9419
    1983      663067       240180       6823      28407       .1539       1.0000     .0084      .1991      .0722     .0638      .9415
    1984      666117       244384       7123      29147       .1562       1.0000     .0083      .1965      .0719     .0638      .9412
    1985      669181       248660       7408      29792       .1585       1.0000     .0081      .1940      .0716     .0638      .9408
    1986      673790       252514       7652      30305       .1610       1.0000     .0080      .1914      .0713     .0637      .9404
    1987      678447       256429       7905      30827       .1633       1.0000     .0079      .1889      .0710     .0637      .9400
    1988      683129       260403       8166      31358       .1658       1.0000     .0078      .1865      .0708     .0637      .9396
    1989      687642       264439       8435      31899       .1682       1.0000     .0076      .1840      .0705     .0637      .9392
    1990      692589       268539       8714      32448       .1707       1.0000     .0075      .1816      .0702     .0637      .9388
    1991      696675       272002       8958      32932       .1732       1.0000     .0074      .1792      .0699     .0637      .9384
    1992      700785       275512       9208      33423       .1758       1.0000     .0073      .1769      .0696     .0637      .9380
    1993      704920       279066       9466      33921       .1783       1.0000     .0072      .1746      .0693     .0637      .9376
    1994      709078       282665       9731      34427       .1809       1.0000     .0071      .1723      .0690     .0637      .9372
    1995      713262       286312      10004      34940       .1835       1.0000     .0070      .1701      .0687     .0637      .9368
    1996      717471       290005      10284      35461       .1863       1.0000     .0069      .1678      .0684     .0637      .9364
    1997      721703       293746      10572      35990       .1890       1.0000     .0068      .1657      .0681     .0637      .9360
    1998      725961       297536      10860      36526       .1918       1.0000     .0067      .1635      .0678     .0637      .9356
    1999      730244       301374      11172      37071       .1946       1.0000     .0067      .1614      .0676     .0637      .9352
    2000      734552       305262      11485      37624       .1976       1.0000     .0066      .1593      .0673     .0637      .9348


ANNUAL RATES OF GROWTH
----------------------

1981-1985        .46%      1.75%      2.45%       .69%      1.49%         .00%    -1.49%     -1.30%      -.41%     -.04%      -.04%
1985-1990        .69%      1.55%      3.30%      1.72%      1.49%         .00%    -1.53%     -1.31%      -.39%     -.03%      -.04%
1990-1995        .59%      1.29%      2.80%      1.49%      1.46%         .00%    -1.37%     -1.30%      -.43%      .00%      -.04%
1995-2000        .59%      1.29%      2.80%      1.49%      1.49%         .00%    -1.17%     -1.30%      -.41%      .00%      -.04%

1981-2000        .59%      1.46%      2.86%      1.38%      1.48%         .00%    -1.38%     -1.30%      -.41%     -.02%      -.04%
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#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

N. DAK. (REGION=North Central)

ENERGY PRICES

YEAR	GAS			ELECTRIC			PETROLEUM			COAL	LPG
	RESIDENT	COMMERC	INDUSTR	RESIDENT	COMMERC	INDUSTR	RESIDENT	COMMERC	INDUSTR		
	($1981/MMBTU)			($1981/KWH)	(INDEX)		($1981/GAL)	(INDEX)		(INDEX)	($1981/GAL)
1981	4.24	3.84	3.68	.0602	.0554	.0306	1.2050	100.00	100.00	100.00	.4800
1982	4.80	4.40	4.24	.0691	.0635	.0351	1.1027	91.51	91.51	103.00	.5050
1983	4.93	4.53	4.37	.0685	.0629	.0348	.9820	81.49	81.49	106.09	.5312
1984	4.87	4.47	4.31	.0722	.0664	.0367	.9538	79.15	79.15	109.27	.5588
1985	4.71	4.31	4.15	.0782	.0719	.0398	.9376	77.81	77.81	112.55	.5879
1986	4.72	4.32	4.16	.0853	.0784	.0434	.9442	78.36	78.36	115.93	.6185
1987	4.95	4.55	4.39	.0840	.0772	.0427	.9508	78.91	78.91	119.41	.6506
1988	5.36	4.96	4.80	.0880	.0809	.0447	.9575	79.46	79.46	122.99	.6845
1989	5.81	5.41	5.25	.0858	.0789	.0436	.9642	80.01	80.01	126.68	.7201
1990	6.14	5.74	5.58	.0897	.0825	.0456	.9709	80.58	80.58	130.48	.7575
1991	6.30	5.90	5.74	.0886	.0814	.0450	.9826	81.54	81.54	134.39	.7969
1992	6.29	5.89	5.73	.0889	.0818	.0452	.9944	82.52	82.52	138.42	.8383
1993	6.24	5.84	5.68	.0884	.0812	.0449	1.0063	83.51	83.51	142.58	.8819
1994	6.32	5.92	5.76	.0877	.0807	.0446	1.0184	84.51	84.51	146.85	.9278
1995	6.46	6.06	5.90	.0852	.0783	.0433	1.0306	85.53	85.53	151.26	.9760
1996	6.69	6.29	6.13	.0844	.0775	.0429	1.0512	87.24	87.24	155.80	1.0268
1997	6.92	6.52	6.36	.0835	.0767	.0424	1.0722	88.98	88.98	160.47	1.0802
1998	7.15	6.75	6.59	.0827	.0760	.0420	1.0937	90.76	90.76	165.28	1.1363
1999	7.42	7.02	6.86	.0814	.0748	.0414	1.1156	92.58	92.58	170.24	1.1954
2000	7.71	7.31	7.15	.0799	.0734	.0406	1.1379	94.43	94.43	175.35	1.2576

ANNUAL RATES OF GROWTH

1981-1985	2.66%	2.93%	3.05%	6.73%	6.73%	6.73%	-6.08%	-6.08%	-6.08%	3.00%	5.20%
1985-1990	5.45%	5.90%	6.10%	2.78%	2.78%	2.78%	.70%	.70%	.70%	3.00%	5.20%
1990-1995	1.02%	1.09%	1.12%	-1.03%	-1.03%	-1.03%	1.20%	1.20%	1.20%	3.00%	5.20%
1995-2000	3.60%	3.82%	3.92%	-1.27%	-1.27%	-1.27%	2.00%	2.00%	2.00%	3.00%	5.20%
1981-2000	3.20%	3.45%	3.56%	1.50%	1.50%	1.50%	-.30%	-.30%	-.30%	3.00%	5.20%

#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

N. DAK. (REGION=North Central)

VALUE ADDED INDEXES BY 2-DIGIT SIC

YEAR	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1981	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1982	.99	.89	.91	.93	.88	1.01	.90	.85	.65	.82	.81	.95	.95	.92
1983	1.01	.93	.94	.97	.92	1.02	.95	.88	.69	.85	.86	1.00	.98	.98
1984	1.04	.97	.97	1.01	.95	1.04	1.00	.92	.73	.89	.91	1.05	1.01	1.04
1985	1.07	1.01	1.01	1.05	.99	1.05	1.06	.96	.77	.92	.96	1.10	1.04	1.10
1986	1.10	1.06	1.05	1.10	1.05	1.05	1.13	1.01	.81	.96	1.02	1.18	1.09	1.14
1987	1.12	1.11	1.09	1.15	1.11	1.05	1.20	1.07	.84	1.00	1.08	1.26	1.14	1.17
1988	1.15	1.17	1.13	1.20	1.18	1.05	1.28	1.14	.87	1.04	1.15	1.34	1.19	1.21
1989	1.18	1.23	1.17	1.26	1.25	1.05	1.36	1.21	.91	1.08	1.22	1.43	1.24	1.25
1990	1.21	1.29	1.22	1.32	1.32	1.05	1.45	1.28	.94	1.12	1.29	1.53	1.30	1.29
1991	1.24	1.34	1.26	1.36	1.38	1.05	1.54	1.33	.98	1.15	1.35	1.60	1.33	1.33
1992	1.27	1.40	1.30	1.41	1.43	1.05	1.64	1.39	1.01	1.19	1.41	1.67	1.36	1.36
1993	1.31	1.46	1.34	1.46	1.49	1.05	1.75	1.45	1.05	1.22	1.47	1.75	1.39	1.40
1994	1.34	1.52	1.38	1.50	1.54	1.05	1.86	1.51	1.09	1.25	1.54	1.83	1.42	1.44
1995	1.38	1.59	1.43	1.56	1.60	1.04	1.98	1.57	1.12	1.29	1.61	1.91	1.45	1.48
1996	1.41	1.66	1.47	1.61	1.67	1.04	2.08	1.62	1.16	1.32	1.68	2.00	1.48	1.52
1997	1.45	1.73	1.52	1.66	1.74	1.04	2.18	1.68	1.21	1.36	1.76	2.09	1.51	1.56
1998	1.49	1.80	1.57	1.72	1.81	1.04	2.28	1.73	1.25	1.40	1.84	2.18	1.55	1.60
1999	1.53	1.88	1.62	1.78	1.88	1.04	2.39	1.79	1.29	1.44	1.92	2.28	1.58	1.65
2000	1.56	1.96	1.67	1.84	1.96	1.03	2.51	1.85	1.34	1.48	2.00	2.38	1.62	1.70

ANNUAL RATES OF GROWTH

	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1981-1985	1.71%	.25%	.25%	1.23%	-.25%	1.23%	1.47%	-1.02%	-6.33%	-2.06%	-1.02%	2.41%	.99%	2.41%
1985-1990	2.49%	5.02%	3.85%	4.68%	5.92%	.08%	6.47%	5.92%	4.07%	4.01%	6.09%	6.82%	4.56%	3.24%
1990-1995	2.66%	4.27%	3.23%	3.40%	3.92%	-.19%	6.43%	4.17%	3.57%	2.87%	4.53%	4.54%	2.21%	2.79%
1995-2000	2.48%	4.27%	3.15%	3.36%	4.14%	-.19%	4.86%	3.34%	3.65%	2.79%	4.43%	4.50%	2.24%	2.81%
1981-2000	2.37%	3.61%	2.74%	3.26%	3.61%	.16%	4.96%	3.29%	1.55%	2.08%	3.72%	4.67%	2.57%	2.83%

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N. DAK. (REGION=North Central)

WAGE INDEXES BY 2-DIGIT SIC

YEAR	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1981	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1982	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
1983	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
1984	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
1985	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08
1986	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
1987	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13
1988	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15
1989	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17
1990	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
1991	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22
1992	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24
1993	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27
1994	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29
1995	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32
1996	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35
1997	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37
1998	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40
1999	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43
2000	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46

ANNUAL RATES OF GROWTH

1981-1985	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1985-1990	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1990-1995	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1995-2000	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1981-2000	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%

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OHIO     (REGION=Midwest            )

                                                   DEMOGRAPHIC DATA
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                                                                     --RATIO OF TOTAL COMMERCIAL ACTIVITY--
                            HOUSE-   PERSONAL                         URBAN  -------------------------------------- NON-MFG/
    YEAR     PEOPLE         HOLDS      INCOME INCOME/HH       APTS    RATIO    MINING  AGRICULT    TRANSP CONSTRUCT TOT EARN
--------   --------      --------    -------- --------    --------  --------  --------  --------  -------- --------  --------
                                  ($000,000) ($1981/HH) -------------------------(RATIOS)--------------------------------
    1981   10840180       3898795     111179     28516       .1415    1.0000     .0083     .0173     .1028     .0949     .6277
    1982   10883540       3964685     109511     27622       .1435    1.0000     .0082     .0168     .1024     .0944     .6298
    1983   10927082       4031690     112797     27978       .1457    1.0000     .0080     .0163     .1019     .0939     .6320
    1984   10970790       4099826     117760     28723       .1478    1.0000     .0079     .0158     .1014     .0934     .6341
    1985   11014672       4169113     122470     29376       .1500    1.0000     .0078     .0154     .1010     .0930     .6362
    1986   11065340       4224145     126512     29950       .1523    1.0000     .0076     .0149     .1005     .0925     .6383
    1987   11116242       4279903     130686     30535       .1545    1.0000     .0075     .0145     .1001     .0920     .6404
    1988   11167370       4336398     134999     31132       .1568    1.0000     .0073     .0141     .0997     .0916     .6424
    1989   11218740       4393639     139454     31740       .1591    1.0000     .0072     .0137     .0992     .0911     .6445
    1990   11270354       4451635     144056     32360       .1615    1.0000     .0071     .0133     .0988     .0907     .6465
    1991   11314308       4500158     148090     32908       .1638    1.0000     .0070     .0129     .0984     .0903     .6485
    1992   11358434       4549210     152236     33464       .1663    1.0000     .0069     .0125     .0980     .0899     .6505
    1993   11402732       4598796     156499     34030       .1687    1.0000     .0068     .0122     .0976     .0895     .6525
    1994   11447204       4648923     160881     34606       .1712    1.0000     .0067     .0118     .0972     .0891     .6546
    1995   11491840       4699596     165386     35191       .1738    1.0000     .0066     .0115     .0968     .0887     .6566
    1996   11536666       4750822     170016     35787       .1763    1.0000     .0065     .0111     .0964     .0883     .6586
    1997   11581660       4802606     174777     36392       .1789    1.0000     .0064     .0108     .0960     .0879     .6607
    1998   11626830       4854955     179671     37008       .1816    1.0000     .0063     .0105     .0957     .0876     .6627
    1999   11672176       4907874     184781     37634       .1843    1.0000     .0063     .0102     .0953     .0872     .6648
    2000   11717698       4961370     189873     38270       .1870    1.0000     .0062     .0099     .0949     .0868     .6668


ANNUAL RATES OF GROWTH
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1981-1985        .40%      1.69%      2.45%       .75%      1.47%      .00%    -1.54%    -2.87%     -.44%     -.50%      .34%
1985-1990        .46%      1.32%      3.30%      1.95%      1.49%      .00%    -1.86%    -2.89%     -.44%     -.50%      .32%
1990-1995        .39%      1.09%      2.80%      1.69%      1.48%      .00%    -1.45%    -2.87%     -.41%     -.44%      .31%
1995-2000        .39%      1.09%      2.80%      1.69%      1.47%      .00%    -1.24%    -2.95%     -.40%     -.43%      .31%

1981-2000        .41%      1.28%      2.86%      1.56%      1.48%      .00%    -1.52%    -2.89%     -.42%     -.47%      .32%
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OHIO (REGION=Midwest)

ENERGY PRICES

	GAS			ELECTRIC			PETROLEUM				
YEAR	RESIDENT	COMMERC	INDUSTR	RESIDENT	COMMERC	INDUSTR	RESIDENT	COMMERC	INDUSTR	COAL	LPG
	($1981/MMBTU)			($1981/KWH)	(INDEX)		($1981/GAL)	(INDEX)		(INDEX)	($1981/GAL)
1981	3.84	3.58	3.32	.0624	.0610	.0417	1.2050	100.00	100.00	100.00	.4800
1982	4.40	4.14	3.88	.0671	.0655	.0448	1.1027	91.51	91.51	103.00	.5050
1983	4.53	4.27	4.01	.0680	.0664	.0454	.9820	81.49	81.49	106.09	.5312
1984	4.47	4.21	3.95	.0721	.0704	.0482	.9538	79.15	79.15	109.27	.5588
1985	4.31	4.05	3.79	.0760	.0742	.0508	.9376	77.81	77.81	112.55	.5879
1986	4.32	4.06	3.80	.0769	.0751	.0514	.9442	78.36	78.36	115.93	.6185
1987	4.55	4.29	4.03	.0788	.0770	.0527	.9508	78.91	78.91	119.41	.6506
1988	4.96	4.70	4.44	.0780	.0762	.0521	.9575	79.46	79.46	122.99	.6845
1989	5.41	5.15	4.89	.0785	.0766	.0524	.9642	80.01	80.01	126.68	.7201
1990	5.74	5.48	5.22	.0769	.0751	.0514	.9709	80.58	80.58	130.48	.7575
1991	5.90	5.64	5.38	.0775	.0757	.0518	.9826	81.54	81.54	134.39	.7969
1992	5.89	5.63	5.37	.0795	.0776	.0531	.9944	82.52	82.52	138.42	.8383
1993	5.84	5.58	5.32	.0743	.0726	.0497	1.0063	83.51	83.51	142.58	.8819
1994	5.92	5.66	5.40	.0800	.0781	.0534	1.0184	84.51	84.51	146.85	.9278
1995	6.06	5.80	5.54	.0724	.0706	.0483	1.0306	85.53	85.53	151.26	.9760
1996	6.29	6.03	5.77	.0777	.0758	.0519	1.0512	87.24	87.24	155.80	1.0268
1997	6.52	6.26	6.00	.0727	.0710	.0486	1.0722	88.98	88.98	160.47	1.0802
1998	6.75	6.49	6.23	.0775	.0757	.0518	1.0937	90.76	90.76	165.28	1.1363
1999	7.02	6.76	6.50	.0723	.0706	.0483	1.1156	92.58	92.58	170.24	1.1954
2000	7.31	7.05	6.79	.0761	.0743	.0508	1.1379	94.43	94.43	175.35	1.2576

ANNUAL RATES OF GROWTH

1981-1985	2.93%	3.13%	3.37%	5.04%	5.04%	5.04%	-6.08%	-6.08%	-6.08%	3.00%	5.20%
1985-1990	5.90%	6.23%	6.61%	.23%	.23%	.23%	.70%	.70%	.70%	3.00%	5.20%
1990-1995	1.09%	1.14%	1.20%	-1.20%	-1.21%	-1.20%	1.20%	1.20%	1.20%	3.00%	5.20%
1995-2000	3.82%	3.98%	4.15%	1.00%	1.00%	1.00%	2.00%	2.00%	2.00%	3.00%	5.20%
1981-2000	3.45%	3.63%	3.84%	1.04%	1.04%	1.04%	-.30%	-.30%	-.30%	3.00%	5.20%

#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

OHIO (REGION=Midwest)

VALUE ADDED INDEXES BY 2-DIGIT SIC

YEAR	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1981	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1982	.99	.89	.91	.93	.88	1.01	.90	.85	.65	.82	.81	.95	.95	.92
1983	1.01	.93	.94	.97	.92	1.02	.95	.88	.69	.85	.86	1.00	.98	.98
1984	1.04	.97	.97	1.01	.95	1.04	1.00	.92	.73	.89	.91	1.05	1.01	1.04
1985	1.07	1.01	1.01	1.05	.99	1.05	1.06	.96	.77	.92	.96	1.10	1.04	1.10
1986	1.10	1.06	1.05	1.10	1.05	1.05	1.13	1.01	.81	.96	1.02	1.18	1.09	1.14
1987	1.12	1.11	1.09	1.15	1.11	1.05	1.20	1.07	.84	1.00	1.08	1.26	1.14	1.17
1988	1.15	1.17	1.13	1.20	1.18	1.05	1.28	1.14	.87	1.04	1.15	1.34	1.19	1.21
1989	1.18	1.23	1.17	1.26	1.25	1.05	1.36	1.21	.91	1.08	1.22	1.43	1.24	1.25
1990	1.21	1.29	1.22	1.32	1.32	1.05	1.45	1.28	.94	1.12	1.29	1.53	1.30	1.29
1991	1.24	1.34	1.26	1.36	1.38	1.05	1.54	1.33	.98	1.15	1.35	1.60	1.33	1.33
1992	1.27	1.40	1.30	1.41	1.43	1.05	1.64	1.39	1.01	1.19	1.41	1.67	1.36	1.36
1993	1.31	1.46	1.34	1.46	1.49	1.05	1.75	1.45	1.05	1.22	1.47	1.75	1.39	1.40
1994	1.34	1.52	1.38	1.50	1.54	1.05	1.86	1.51	1.09	1.25	1.54	1.83	1.42	1.44
1995	1.38	1.59	1.43	1.56	1.60	1.04	1.98	1.57	1.12	1.29	1.61	1.91	1.45	1.48
1996	1.41	1.66	1.47	1.61	1.67	1.04	2 08	1.62	1.16	1.32	1.68	2.00	1.48	1.52
1997	1.45	1.73	1.52	1.66	1.74	1.04	2 18	1.68	1.21	1.36	1.76	2.09	1.51	1.56
1998	1.49	1.80	1.57	1.72	1.81	1.04	2 28	1.73	1.25	1.40	1.84	2.18	1.55	1.60
1999	1.53	1.88	1.62	1.78	1.88	1.04	2 39	1.79	1.29	1.44	1.92	2.28	1.58	1.65
2000	1.56	1.96	1.67	1.84	1.96	1.03	2 51	1.85	1.34	1.48	2.00	2.38	1.62	1.70

ANNUAL RATES OF GROWTH

1981-1985	1.71%	.25%	.25%	1.23%	-.25%	1.23%	1 47%	-1.02%	-6.33%	-2.06%	-1.02%	2.41%	.99%	2.41%
1985-1990	2.49%	5.02%	3.85%	4.68%	5.92%	.00%	6 47%	5.92%	4.07%	4.01%	6.09%	6.82%	4.56%	3.24%
1990-1995	2.66%	4.27%	3.23%	3.40%	3.92%	-.19%	6 43%	4.17%	3.57%	2.87%	4.53%	4.54%	2.21%	2.79%
1995-2000	2.48%	4.27%	3.15%	3.36%	4.14%	-.19%	4 86%	3.34%	3.65%	2.79%	4.43%	4.50%	2.24%	2.81%
1981-2000	2.37%	3.61%	2.74%	3.26%	3.61%	.16%	4 96%	3.29%	1.55%	2.08%	3.[illegible]%	4.67%	2.57%	2.83%

#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

OHIO (REGION=Midwest)

WAGE INDEXES BY 2-DIGIT SIC

YEAR	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL.	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1981	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1982	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
1983	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
1984	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
1985	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08
1986	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
1987	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13
1988	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15
1989	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17
1990	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
1991	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22
1992	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24
1993	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27
1994	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29
1995	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32
1996	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35
1997	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37
1998	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40
1999	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43
2000	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46

ANNUAL RATES OF GROWTH

1981-1985	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1985-1990	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1990-1995	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1995-2000	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1981-2000	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%

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037 -- ADDABBO - HEINZ SCENARIO                                                     FRI, MAY 13, 1983,  3:37 PM

OKLAHOMA (REGION=Southwest             )

                                             DEMOGRAPHIC DATA
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                                                                 --RATIO OF TOTAL COMMERCIAL ACTIVITY--
                          HOUSE-  PERSONAL                      URBAN  ------------------------------------   NON-MFG/
    YEAR      PEOPLE      HOLDS     INCOME  INCOME/HH     APTS   RATIO     MINING  AGRICULT    TRANSP CONSTRUCT  TOT EARN
 --------   --------   --------   --------   --------  -------- --------  --------  --------  --------  --------  --------
                                (#000,000) (#1981/HH) ------------------------------(RATIOS)---------------------------------
    1981     3061404    1146640      31771      27708    .0972  1.0000     .0457     .0559     .0966     .0698     .8195
    1982     3097222    1174962      31294      26634    .0986  1.0000     .0442     .0543     .0965     .0698     .8192
    1983     3133460    1203983      32233      26772    .1000  1.0000     .0427     .0528     .0965     .0698     .8188
    1984     3170121    1233721      33652      27276    .1015  1.0000     .0413     .0513     .0964     .0698     .8185
    1985     3207211    1264194      34998      27684    .1030  1.0000     .0399     .0499     .0963     .0698     .8181
    1986     3236717    1286697      36153      28097    .1045  1.0000     .0385     .0485     .0962     .0697     .8178
    1987     3266495    1309600      37346      28517    .1061  1.0000     .0373     .0471     .0961     .0697     .8174
    1988     3296547    1332911      38578      28943    .1077  1.0000     .0360     .0458     .0961     .0697     .8171
    1989     3326875    1356637      39851      29375    .1092  1.0000     .0348     .0446     .0960     .0697     .8168
    1990     3357403    1380785      41166      29814    .1108  1.0000     .0337     .0433     .0959     .0697     .8164
    1991     3385015    1401773      42319      30189    .1125  1.0000     .0326     .0420     .0958     .0697     .8160
    1992     3412772    1423080      43504      30570    .1142  1.0000     .0316     .0408     .0957     .0697     .8156
    1993     3440755    1444711      44722      30956    .1158  1.0000     .0306     .0396     .0956     .0697     .8152
    1994     3468969    1466671      45974      31346    .1176  1.0000     .0296     .0385     .0955     .0697     .8148
    1995     3497415    1488964      47261      31741    .1193  1.0000     .0287     .0373     .0954     .0697     .8144
    1996     3526092    1511595      48585      32141    .1212  1.0000     .0278     .0363     .0953     .0697     .8140
    1997     3555006    1534572      49945      32547    .1230  1.0000     .0269     .0352     .0952     .0697     .8136
    1998     3584157    1557897      51343      32957    .1248  1.0000     .0261     .0342     .0951     .0697     .8132
    1999     3613547    1581576      52781      33372    .1267  1.0000     .0252     .0332     .0950     .0697     .8128
    2000     3643170    1605617      54259      33793    .1285  1.0000     .0244     .0322     .0949     .0697     .8124


ANNUAL RATES OF GROWTH
----------------------

1981-1985      1.17%      2.47%      2.45%      -.02%    1.46%    .00%    -3.34%    -2.80%    -.08%      .00%      -.04%
1985-1990       .92%      1.78%      3.30%      1.49%    1.47%    .00%    -3.32%    -2.80%    -.08%     -.03%      -.04%
1990-1995       .82%      1.52%      2.80%      1.26%    1.49%    .00%    -3.16%    -2.94%    -.10%      .00%      -.05%
1995-2000       .82%      1.52%      2.80%      1.26%    1.50%    .00%    -3.19%    -2.90%    -.11%      .00%      -.05%

1981-2000       .92%      1.79%      2.86%      1.05%    1.48%    .00%    -3.25%    -2.86%    -.09%     -.01%      -.05%
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837 -- ADDABBO - WEINZ SCENARIO                                                                  FRI, MAY 13, 1983,  3:37 PM

OKLAHOMA (REGION=Southwest              )

                                                   ENERGY PRICES
                                                   -------------

                          GAS                                 ELECTRIC                             PETROLEUM
            ------------------------------   ------------------------------   ------------------------------
    YEAR   RESIDENT     COMMERC     INDUSTR   RESIDENT    COMMERC     INDUSTR   RESIDENT    COMMERC     INDUSTR       COAL         LPG
 --------  --------    --------    --------   --------    --------    --------   --------    --------    --------    --------    --------
           -------( $1981/MMBTU)-------($1981/KWH) ----( INDEX)------($1981/GAL) -----( INDEX)-----  ( INDEX)($1981/GAL)

    1981      2.78        2.78        2.71      .0594       .0552       .0394     1.2050      100.00      100.00      100.00       .4800
    1982      3.34        3.34        3.27      .0684       .0635       .0454     1.1027       91.51       91.51      103.00       .5050
    1983      3.47        3.47        3.40      .0716       .0665       .0475      .9820       81.49       81.49      106.09       .5312
    1984      3.41        3.41        3.34      .0768       .0706       .0504      .9530       79.15       79.15      109.27       .5588
    1985      3.25        3.25        3.18      .0799       .0742       .0530      .9376       77.81       77.81      112.55       .5879
    1986      3.26        3.26        3.19      .0827       .0768       .0540      .9442       78.36       78.36      115.93       .6185
    1987      3.49        3.49        3.42      .0831       .0772       .0551      .9508       78.91       78.91      119.41       .6506
    1988      3.90        3.90        3.83      .0841       .0781       .0558      .9575       79.46       79.46      122.99       .6845
    1989      4.35        4.35        4.20      .0855       .0794       .0567      .9642       80.01       80.01      126.68       .7201
    1990      4.68        4.68        4.61      .0861       .0800       .0571      .9709       80.58       80.58      130.48       .7575
    1991      4.84        4.84        4.77      .0875       .0813       .0580      .9826       81.54       81.54      134.39       .7969
    1992      4.83        4.83        4.76      .0894       .0838       .0593      .9944       82.52       82.52      138.42       .8383
    1993      4.78        4.78        4.71      .0811       .0753       .0530     1.0063       83.51       83.51      142.58       .8819
    1994      4.86        4.86        4.79      .0899       .0835       .0596     1.0184       84.51       84.51      146.85       .9278
    1995      5.00        5.00        4.93      .0806       .0749       .0535     1.0306       85.53       85.53      151.26       .9760
    1996      5.23        5.23        5.16      .0884       .0821       .0587     1.0512       87.24       87.24      155.80      1.0268
    1997      5.46        5.46        5.39      .0806       .0740       .0534     1.0722       88.98       88.98      160.47      1.0802
    1998      5.69        5.69        5.62      .0884       .0821       .0586     1.0937       90.76       90.76      165.28      1.1363
    1999      5.96        5.96        5.89      .0818       .0752       .0537     1.1156       92.58       92.58      170.24      1.1954
    2000      6.25        6.25        6.18      .0871       .0809       .0577     1.1379       94.43       94.43      175.35      1.2576


ANNUAL RATES OF GROWTH
----------------------

1981-1985     3.98%       3.98%       4.08%      7.68%       7.68%       7.68%     -6.08%      -6.08%      -6.08%       3.00%       5.20%
1985-1990     7.57%       7.57%       7.71%      1.51%       1.51%       1.51%       .70%        .70%        .70%       3.00%       5.20%
1990-1995     1.33%       1.33%       1.35%     -1.31%      -1.31%      -1.31%      1.20%       1.20%       1.20%       3.00%       5.20%
1995-2000     4.56%       4.56%       4.62%      1.55%       1.55%       1.56%      2.00%       2.00%       2.00%       3.00%       5.20%

1981-2000     4.36%       4.36%       4.43%      2.03%       2.03%       2.03%      -.30%       -.30%       -.30%       3.00%       5.20%
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037 -- ADDABBO - HEINZ SCENARIO                                                              FRI, MAY 13, 1983,  3:37 PM

OKLAHOMA (REGION=Southwest          )

                                         VALUE ADDED INDEXES BY 2-DIGIT SIC
                                         ----------------------------------

                                                                                PRIMARY  FABRIC.           ELECTRIC
YEAR      FOOD  TEXTILE   LUMBER     PAPER CHEMICAL    PETROL   RUBBER    STONE   METAL    METAL  MACHINE  MACHINE   TRANSP    OTHER
----   -------  -------  -------   -------  -------   -------  -------  -------  -------  -------  -------  -------  -------  -------
1981      1.00     1.00     1.00      1.00     1.00      1.00     1.00     1.00     1.00     1.00     1.00     1.00     1.00     1.00
1982       .99      .89      .91       .93      .88      1.01      .90      .85      .65      .82      .81      .95      .95      .92
1983      1.01      .93      .94       .97      .92      1.02      .95      .88      .69      .85      .86     1.00      .98      .98
1984      1.04      .97      .97      1.01      .95      1.04     1.00      .92      .73      .89      .91     1.05     1.01     1.04
1985      1.07     1.01     1.01      1.05      .99      1.05     1.06      .96      .77      .92      .96     1.10     1.04     1.10
1986      1.10     1.06     1.05      1.10     1.05      1.05     1.13     1.01      .81      .96     1.02     1.18     1.09     1.14
1987      1.12     1.11     1.09      1.15     1.11      1.05     1.20     1.07      .84     1.00     1.08     1.26     1.14     1.17
1988      1.15     1.17     1.13      1.20     1.18      1.05     1.28     1.14      .87     1.04     1.15     1.34     1.19     1.21
1989      1.18     1.23     1.17      1.26     1.25      1.05     1.36     1.21      .91     1.08     1.22     1.43     1.24     1.25
1990      1.21     1.29     1.22      1.32     1.32      1.05     1.45     1.28      .94     1.12     1.29     1.53     1.30     1.29
1991      1.24     1.34     1.26      1.36     1.38      1.05     1.54     1.33      .98     1.15     1.35     1.60     1.33     1.33
1992      1.27     1.40     1.30      1.41     1.43      1.05     1.64     1.39     1.01     1.19     1.41     1.67     1.36     1.36
1993      1.31     1.46     1.34      1.46     1.49      1.05     1.75     1.45     1.05     1.22     1.47     1.75     1.39     1.40
1994      1.34     1.52     1.38      1.50     1.54      1.05     1.86     1.51     1.09     1.25     1.54     1.83     1.42     1.44
1995      1.38     1.59     1.43      1.56     1.60      1.04     1.98     1.57     1.12     1.29     1.61     1.91     1.45     1.48
1996      1.41     1.66     1.47      1.61     1.67      1.04     2.08     1.62     1.16     1.32     1.68     2.00     1.48     1.52
1997      1.45     1.73     1.52      1.66     1.74      1.04     2.18     1.68     1.21     1.36     1.76     2.09     1.51     1.56
1998      1.49     1.80     1.57      1.72     1.81      1.04     2.28     1.73     1.25     1.40     1.84     2.18     1.55     1.60
1999      1.53     1.88     1.62      1.78     1.88      1.04     2.39     1.79     1.29     1.44     1.92     2.28     1.58     1.65
2000      1.56     1.96     1.67      1.84     1.96      1.03     2.51     1.85     1.34     1.48     2.00     2.38     1.62     1.70


ANNUAL RATES OF GROWTH
---------------------

1981-1985 1.71%     .25%     .25%     1.23%    -.25%     1.23%    1.47%   -1.02%   -6.33%   -2.06%   -1.02%    2.41%     .99%    2.41%
1985-1990 2.49%    5.02%    3.85%     4.68%    5.92%      .00%    6.47%    5.92%    4.07%    4.01%    6.09%    6.82%    4.56%    3.24%
1990-1995 2.66%    4.27%    3.23%     3.40%    3.92%     -.19%    6.43%    4.17%    3.57%    2.87%    4.53%    4.54%    2.21%    2.79%
1995-2000 2.48%    4.27%    3.15%     3.36%    4.14%     -.19%    4.86%    3.34%    3.65%    2.79%    4.43%    4.50%    2.24%    2.81%

1981-2000 2.37%    3.61%    2.74%     3.26%    3.61%      .16%    4.96%    3.29%    1.55%    2.08%    3.72%    4.67%    2.57%    2.83%
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#37 -- ADDABBO - HEINZ SCENARIO

FRI, MAY 13, 1983, 3:37 PM

OKLAHOMA (REGION=Southwest)

WAGE INDEXES BY 2-DIGIT SIC

YEAR	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1981	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1982	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
1983	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
1984	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
1985	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08
1986	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
1987	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13
1988	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15
1989	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17
1990	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
1991	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22
1992	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24
1993	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27
1994	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29
1995	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32
1996	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35
1997	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37
1998	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40
1999	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43
2000	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46

ANNUAL RATES OF GROWTH

1981-1985	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1985-1990	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1990-1995	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1995-2000	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1981-2000	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%

#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

OREGON (REGION=Northwest)

DEMOGRAPHIC DATA

YEAR	PEOPLE	HOUSE-HOLDS	PERSONAL INCOME	INCOME/HH	APTS	URBAN RATIO	--RATIO OF TOTAL COMMERCIAL ACTIVITY-- MINING	AGRICULT	TRANSP	CONSTRUCT	NON-MFG/ TOT EARN
			($000,000)	($1981/HH)	(RATIOS)						
1981	2690431	1025982	26526	25854	.1489	1.0000	.0341	.0330	.1023	.0797	.7523
1982	2750158	1062200	26128	24598	.1510	1.0000	.0333	.0320	.1018	.0794	.7532
1983	2811212	1099696	26912	24472	.1533	1.0000	.0324	.0310	.1014	.0791	.7542
1984	2873621	1138515	28096	24678	.1556	1.0000	.0316	.0300	.1009	.0789	.7551
1985	2937415	1178704	29220	24790	.1578	1.0000	.0308	.0291	.1005	.0786	.7561
1986	2993226	1211354	30184	24918	.1602	1.0000	.0300	.0282	.1000	.0783	.7570
1987	3050097	1244909	31180	25046	.1626	1.0000	.0293	.0273	.0996	.0781	.7579
1988	3108049	1279393	32209	25175	.1649	1.0000	.0285	.0264	.0991	.0778	.7588
1989	3167103	1314832	33272	25305	.1674	1.0000	.0278	.0256	.0987	.0776	.7598
1990	3227278	1351254	34370	25436	.1699	1.0000	.0271	.0248	.0982	.0773	.7607
1991	3277946	1381927	35332	25568	.1724	1.0000	.0264	.0240	.0977	.0770	.7616
1992	3329410	1413296	36322	25700	.1751	1.0000	.0258	.0233	.0972	.0767	.7625
1993	3381681	1445379	37339	25833	.1777	1.0000	.0251	.0225	.0967	.0764	.7634
1994	3434774	1478189	38384	25967	.1805	1.0000	.0245	.0218	.0962	.0761	.7643
1995	3488708	1511744	39459	26102	.1832	1.0000	.0239	.0212	.0957	.0738	.7652
1996	3543473	1546061	40564	26237	.1860	1.0000	.0233	.0205	.0953	.0755	.7661
1997	3599106	1581157	41700	26373	.1889	1.0000	.0227	.0199	.0948	.0752	.7670
1998	3655613	1617050	42867	26510	.1917	1.0000	.0221	.0192	.0943	.0749	.7679
1999	3713006	1653756	44068	26647	.1946	1.0000	.0215	.0186	.0938	.0747	.7688
2000	3771301	1691297	45301	26785	.1975	1.0000	.0210	.0181	.0933	.0744	.7698

ANNUAL RATES OF GROWTH

1981-1985	2.22%	3.53%	2.45%	-1.05%	1.46%	.00%	-2.51%	-3.10%	-.44%	-.35%	.13%
1985-1990	1.90%	2.77%	3.30%	.52%	1.49%	.00%	-2.53%	-3.15%	-.46%	-.33%	.12%
1990-1995	1.57%	2.27%	2.80%	.52%	1.52%	.00%	-2.48%	-3.09%	-.51%	-.39%	.12%
1995-2000	1.57%	2.27%	2.80%	.52%	1.51%	.00%	-2.55%	-3.11%	-.51%	-.37%	.12%
1981-2000	1.79%	2.67%	2.86%	.19%	1.50%	.00%	-2.52%	-3.11%	-.48%	-.36%	.12%

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#37 -- ADDABBO - HEINZ SCENARIO                                                           FRI, MAY 13, 1983,  3:37 PM

OREGON    (REGION=Northwest           )

                                                ENERGY PRICES
                                                -------------

                         GAS                              ELECTRIC                          PETROLEUM
          ------------------------------   ------------------------------   ------------------------------
    YEAR  RESIDENT   COMMERC    INDUSTR    RESIDENT   COMMERC    INDUSTR    RESIDENT   COMMERC    INDUSTR       COAL       LPG
--------  --------   --------   --------   --------   --------   --------   --------   --------   --------   --------   --------
          -------( $1981/MMBTU)-------($1981/KWH) ----( INDEX)------($1981/GAL) -----( INDEX)-----  ( INDEX)($1981/GAL)

    1981      5.78       5.19       4.66      .0263      .0272      .0134     1.2050     100.00     100.00     100.00      .4800
    1982      6.34       5.75       5.22      .0276      .0286      .0140     1.1027      91.51      91.51     103.00      .5050
    1983      6.47       5.88       5.35      .0266      .0275      .0135      .9820      81.49      81.49     106.09      .5312
    1984      6.41       5.82       5.29      .0280      .0290      .0142      .9538      79.15      79.15     109.27      .5588
    1985      6.25       5.66       5.13      .0288      .0298      .0146      .9376      77.81      77.81     112.55      .5879
    1986      6.26       5.67       5.14      .0289      .0299      .0147      .9442      78.36      78.36     115.93      .6185
    1987      6.49       5.90       5.37      .0290      .0300      .0147      .9508      78.91      78.91     119.41      .6506
    1988      6.90       6.31       5.70      .0310      .0329      .0162      .9575      79.46      79.46     122.99      .6845
    1989      7.35       6.76       6.23      .0320      .0331      .0162      .9642      80.01      80.01     126.68      .7201
    1990      7.68       7.09       6.56      .0318      .0329      .0162      .9709      80.58      80.58     130.48      .7575
    1991      7.84       7.25       6.72      .0328      .0340      .0167      .9826      81.54      81.54     134.39      .7969
    1992      7.83       7.24       6.71      .0356      .0360      .0181      .9944      82.52      82.52     138.42      .8383
    1993      7.78       7.19       6.66      .0381      .0394      .0193     1.0063      83.51      83.51     142.58      .8819
    1994      7.86       7.27       6.74      .0403      .0417      .0205     1.0184      84.51      84.51     146.85      .9278
    1995      8.00       7.41       6.88      .0420      .0434      .0214     1.0306      85.53      85.53     151.26      .9760
    1996      8.23       7.64       7.11      .0434      .0449      .0221     1.0512      87.24      87.24     155.80     1.0268
    1997      8.46       7.87       7.34      .0447      .0462      .0227     1.0722      88.98      88.98     160.47     1.0802
    1998      8.69       8.10       7.57      .0457      .0473      .0232     1.0937      90.76      90.76     165.28     1.1363
    1999      8.96       8.37       7.84      .0453      .0468      .0230     1.1156      92.58      92.58     170.24     1.1954
    2000      9.25       8.66       8.13      .0447      .0462      .0227     1.1379      94.43      94.43     175.35     1.2576


ANNUAL RATES OF GROWTH
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1981-1985    1.97%      2.19%      2.43%      2.31%      2.30%      2.30%     -6.00%     -6.00%     -6.00%      3.00%      5.20%
1985-1990    4.21%      4.61%      5.04%      2.00%      2.01%      2.01%       .70%       .70%       .70%      3.00%      5.20%
1990-1995     .82%       .89%       .96%      5.74%      5.74%      5.74%      1.20%      1.20%      1.20%      3.00%      5.20%
1995-2000    2.95%      3.17%      3.40%      1.26%      1.26%      1.26%      2.00%      2.00%      2.00%      3.00%      5.20%

1981-2000    2.51%      2.73%      2.97%      2.84%      2.84%      2.84%      -.30%      -.30%      -.30%      3.00%      5.20%
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#37 -- ADDABBO - HEINZ SCENARIO                                                              FRI, MAY 13, 1983,  3:37 PM

OREGON    (REGION=Northwest          )

                                     VALUE ADDED INDEXES BY 2-DIGIT SIC
                                     ----------------------------------

                                                                                   PRIMARY  FABRIC.           ELECTRIC
YEAR      FOOD  TEXTILE   LUMBER     PAPER CHEMICAL    PETROL    RUBBER     STONE    METAL    METAL  MACHINE  MACHINE    TRANSP     OTHER
----   -------  -------  -------   ------- -------    -------   -------   -------  -------  -------  -------  -------   -------   -------
1981      1.00     1.00     1.00      1.00     1.00      1.00      1.00      1.00     1.00     1.00     1.00     1.00      1.00      1.00
1982       .99      .89      .91       .93      .88      1.01       .90       .85      .65      .82      .81      .95       .95       .92
1983      1.01      .93      .94       .97      .92      1.02       .95       .88      .69      .85      .86     1.00       .98       .98
1984      1.04      .97      .97      1.01      .95      1.04      1.00       .92      .73      .89      .91     1.05      1.01      1.04
1985      1.07     1.01     1.01      1.05      .99      1.05      1.06       .96      .77      .92      .96     1.10      1.04      1.10
1986      1.10     1.06     1.05      1.10     1.05      1.05      1.13      1.01      .81      .96     1.02     1.18      1.09      1.14
1987      1.12     1.11     1.09      1.15     1.11      1.05      1.20      1.07      .84     1.00     1.08     1.26      1.14      1.17
1988      1.15     1.17     1.13      1.20     1.18      1.05      1.28      1.14      .87     1.04     1.15     1.34      1.19      1.21
1989      1.18     1.23     1.17      1.26     1.25      1.05      1.36      1.21      .91     1.08     1.22     1.43      1.24      1.25
1990      1.21     1.29     1.22      1.32     1.32      1.05      1.45      1.28      .94     1.12     1.29     1.53      1.30      1.29
1991      1.24     1.34     1.26      1.36     1.38      1.05      1.54      1.33      .98     1.15     1.35     1.60      1.33      1.33
1992      1.27     1.40     1.30      1.41     1.43      1.05      1.64      1.39     1.01     1.19     1.41     1.67      1.36      1.36
1993      1.31     1.46     1.34      1.46     1.49      1.05      1.75      1.45     1.05     1.22     1.47     1.75      1.39      1.40
1994      1.34     1.52     1.38      1.50     1.54      1.05      1.86      1.51     1.09     1.25     1.54     1.83      1.42      1.44
1995      1.38     1.59     1.43      1.56     1.60      1.04      1.98      1.57     1.12     1.29     1.61     1.91      1.45      1.48
1996      1.41     1.66     1.47      1.61     1.67      1.04      2.08      1.62     1.16     1.32     1.68     2.00      1.48      1.52
1997      1.45     1.73     1.52      1.66     1.74      1.04      2.18      1.68     1.21     1.36     1.76     2.09      1.51      1.56
1998      1.49     1.80     1.57      1.72     1.81      1.04      2.28      1.73     1.25     1.40     1.84     2.18      1.55      1.60
1999      1.53     1.88     1.62      1.78     1.88      1.04      2.39      1.79     1.29     1.44     1.92     2.28      1.58      1.65
2000      1.56     1.96     1.67      1.84     1.96      1.03      2.51      1.85     1.34     1.48     2.00     2.38      1.62      1.70


ANNUAL RATES OF GROWTH
----------------------

1981-1985 1.71%     .25%     .25%     1.23%    -.25%     1.23%     1.47%    -1.02%   -6.33%   -2.06%   -1.02%    2.41%      .99%     2.41%
1985-1990 2.49%    5.02%    3.85%     4.68%    5.92%      .00%     6.47%     5.92%    4.07%    4.01%    6.09%    6.82%     4.56%     3.24%
1990-1995 2.66%    4.27%    3.23%     3.40%    3.92%     -.19%     6.43%     4.17%    3.57%    2.87%    4.53%    4.54%     2.21%     2.79%
1995-2000 2.48%    4.27%    3.15%     3.36%    4.14%     -.19%     4.86%     3.34%    3.65%    2.79%    4.43%    4.50%     2.24%     2.81%

1981-2000 2.37%    3.61%    2.74%     3.26%    3.61%      .16%     4.96%     3.29%    1.55%    2.08%    3.72%    4.67%     2.57%     2.83%
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#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

OREGON (REGION=Northwest)

WAGE INDEXES BY 2-DIGIT SIC

YEAR	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1981	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1982	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
1983	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
1984	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
1985	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08
1986	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
1987	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13
1988	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15
1989	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17
1990	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
1991	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22
1992	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24
1993	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27
1994	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29
1995	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32
1996	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35
1997	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37
1998	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40
1999	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43
2000	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46

ANNUAL RATES OF GROWTH

1981-1985	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1985-1990	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1990-1995	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1995-2000	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1981-2000	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%

037 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

PA-EAST (REGION=Middle Atlantic)

DEMOGRAPHIC DATA

YEAR	PEOPLE	HOUSE-HOLDS	PERSONAL INCOME	INCOME/HH	APTS	URBAN RATIO	--RATIO OF TOTAL COMMERCIAL ACTIVITY-- MINING	AGRICULT	TRANSP	CONSTRUCT	NON-MFG/ TOT EARN
			($000,000)	($1981/HH)	(RATIOS)						
1981	5931720	2136882	26526	12413	.1167	1.0000	.0133	.0130	.1041	.0918	.6698
1982	5929940	2163593	26128	12076	.1184	1.0000	.0130	.0126	.1036	.0912	.6719
1983	5928161	2190638	26912	12285	.1202	1.0000	.0127	.0123	.1031	.0907	.6741
1984	5926382	2218021	28096	12667	.1219	1.0000	.0124	.0120	.1026	.0901	.6762
1985	5924604	2245747	29220	13011	.1238	1.0000	.0121	.0117	.1021	.0896	.6783
1986	5929343	2266857	30184	13315	.1256	1.0000	.0118	.0113	.1016	.0891	.6804
1987	5934086	2288165	31180	13627	.1274	1.0000	.0115	.0110	.1011	.0886	.6825
1988	5938833	2309674	32209	13945	.1293	1.0000	.0112	.0107	.1006	.0881	.6846
1989	5943583	2331384	33272	14271	.1312	1.0000	.0109	.0105	.1002	.0875	.6866
1990	5948337	2353299	34370	14605	.1332	1.0000	.0106	.0102	.0997	.0870	.6887
1991	5960234	2374243	35332	14882	.1352	1.0000	.0103	.0099	.0992	.0865	.6908
1992	5972155	2395373	36322	15163	.1373	1.0000	.0100	.0096	.0987	.0860	.6929
1993	5984100	2416691	37339	15450	.1394	1.0000	.0097	.0094	.0982	.0855	.6950
1994	5996069	2438200	38384	15743	.1415	1.0000	.0095	.0091	.0977	.0850	.6972
1995	6008062	2459899	39459	16041	.1437	1.0000	.0092	.0088	.0972	.0845	.6993
1996	6020079	2481792	40564	16345	.1459	1.0000	.0090	.0086	.0968	.0841	.7014
1997	6032120	2503881	41700	16654	.1481	1.0000	.0087	.0083	.0963	.0836	.7036
1998	6044185	2526165	42867	16969	.1503	1.0000	.0085	.0081	.0958	.0831	.7057
1999	6056274	2548649	44068	17291	.1526	1.0000	.0082	.0079	.0953	.0826	.7079
2000	6068387	2571332	45301	17618	.1550	1.0000	.0080	.0076	.0948	.0822	.7101

ANNUAL RATES OF GROWTH

1981-1985	-.03%	1.25%	2.45%	1.18%	1.49%	.00%	-2.34%	-2.60%	-.48%	-.60%	.32%
1985-1990	.08%	.94%	3.30%	2.34%	1.47%	.00%	-2.61%	-2.71%	-.47%	-.59%	.30%
1990-1995	.20%	.89%	2.80%	1.89%	1.53%	.00%	-2.79%	-2.91%	-.51%	-.58%	.31%
1995-2000	.20%	.89%	2.80%	1.89%	1.53%	.00%	-2.76%	-2.89%	-.50%	-.55%	.31%
1981-2000	.12%	.98%	2.86%	1.86%	1.50%	.00%	-2.64%	-2.79%	-.49%	-.58%	.31%

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837 -- ADDABBO - HEINZ SCENARIO                                                                              FRI, MAY 13, 1983,  3:37 PM

PA-EAST  (REGION=Middle Atlantic     )

                                                ENERGY PRICES
                                                -------------

                               GAS                              ELECTRIC                            PETROLEUM
               ---------------------------   ---------------------------   ---------------------------
    YEAR   RESIDENT    COMMERC    INDUSTR   RESIDENT    COMMERC    INDUSTR   RESIDENT    COMMERC    INDUSTR       COAL        LPG
 --------  --------   --------   --------   --------   --------   --------   --------   --------   --------   --------   --------
           -------( $1981/MMBTU)-------($1981/KWH) ----( INDEX)------($1981/GAL) -----( INDEX)-----  ( INDEX)($1981/GAL)

    1981       4.34       4.11       3.52      .0642      .0616      .0451     1.2050     100.00     100.00     100.00      .4800
    1982       4.90       4.67       4.08      .0669      .0642      .0470     1.1027      91.51      91.51     103.00      .5050
    1983       5.03       4.80       4.21      .0665      .0638      .0466      .9820      81.49      81.49     106.09      .5312
    1984       4.97       4.74       4.15      .0684      .0657      .0480      .9530      79.15      79.15     109.27      .5588
    1985       4.81       4.50       3.99      .0712      .0683      .0500      .9376      77.81      77.81     112.55      .5879
    1986       4.82       4.59       4.00      .0734      .0705      .0515      .9442      78.36      78.36     115.93      .6185
    1987       5.05       4.82       4.23      .0747      .0717      .0524      .9500      78.91      78.91     119.41      .6506
    1988       5.46       5.23       4.64      .0737      .0700      .0517      .9575      79.46      79.46     122.99      .6845
    1989       5.91       5.68       5.09      .0733      .0703      .0514      .9642      80.01      80.01     126.68      .7201
    1990       6.24       6.01       5.42      .0732      .0703      .0514      .9709      80.50      80.50     130.48      .7575
    1991       6.40       6.17       5.50      .0741      .0711      .0520      .9826      81.54      81.54     134.39      .7969
    1992       6.39       6.16       5.57      .0747      .0717      .0524      .9944      82.52      82.52     138.42      .8383
    1993       6.34       6.11       5.52      .0741      .0712      .0520     1.0063      83.51      83.51     142.58      .8819
    1994       6.42       6.19       5.60      .0737      .0707      .0517     1.0184      84.51      84.51     146.85      .9278
    1995       6.56       6.33       5.74      .0711      .0682      .0499     1.0306      85.53      85.53     151.26      .9760
    1996       6.79       6.56       5.97      .0710      .0681      .0498     1.0512      87.24      87.24     155.80     1.0268
    1997       7.02       6.79       6.20      .0708      .0680      .0497     1.0722      88.98      88.98     160.47     1.0802
    1998       7.25       7.02       6.43      .0706      .0678      .0496     1.0937      90.76      90.76     165.28     1.1363
    1999       7.52       7.29       6.70      .0701      .0673      .0492     1.1156      92.58      92.58     170.24     1.1954
    2000       7.81       7.50       6.99      .0694      .0666      .0487     1.1379      94.43      94.43     175.35     1.2576


ANNUAL RATES OF GROWTH
----------------------

1981-1985     2.60%      2.74%      3.18%      2.62%      2.62%      2.62%     -6.08%     -6.08%     -6.08%      3.00%      5.20%
1985-1990     5.34%      5.58%      6.32%       .57%       .56%       .56%       .70%       .70%       .70%      3.00%      5.20%
1990-1995     1.01%      1.04%      1.15%      -.59%      -.59%      -.59%      1.20%      1.20%      1.20%      3.00%      5.20%
1995-2000     3.55%      3.67%      4.02%      -.48%      -.48%      -.48%      2.00%      2.00%      2.00%      3.00%      5.20%

1981-2000     3.14%      3.27%      3.68%       .41%       .41%       .41%      -.30%      -.30%      -.30%      3.00%      5.20%
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037 -- ADDABBO - HEINZ SCENARIO   FRI, MAY 13, 1983, 3:37 PM

PA-EAST (REGION=Middle Atlantic)

VALUE ADDED INDEXES BY 2-DIGIT SIC

YEAR	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1981	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1982	.99	.89	.91	.93	.88	1.01	.90	.85	.65	.82	.81	.95	.95	.92
1983	1.01	.93	.94	.97	.92	1.02	.95	.88	.69	.85	.86	1.00	.98	.98
1984	1.04	.97	.97	1.01	.95	1.04	1.00	.92	.73	.89	.91	1.05	1.01	1.04
1985	1.07	1.01	1.01	1.05	.99	1.05	1.06	.96	.77	.92	.96	1.10	1.04	1.10
1986	1.10	1.06	1.05	1.10	1.05	1.05	1.13	1.01	.81	.96	1.02	1.18	1.09	1.14
1987	1.12	1.11	1.09	1.15	1.11	1.05	1.20	1.07	.84	1.00	1.08	1.26	1.14	1.17
1988	1.15	1.17	1.13	1.20	1.18	1.05	1.28	1.14	.87	1.04	1.15	1.34	1.19	1.21
1989	1.18	1.23	1.17	1.26	1.25	1.05	1.36	1.21	.91	1.08	1.22	1.43	1.24	1.25
1990	1.21	1.29	1.22	1.32	1.32	1.05	1.45	1.28	.94	1.12	1.29	1.53	1.30	1.29
1991	1.24	1.34	1.26	1.36	1.38	1.05	1.54	1.33	.98	1.15	1.35	1.60	1.33	1.33
1992	1.27	1.40	1.30	1.41	1.43	1.05	1.64	1.39	1.01	1.19	1.41	1.67	1.36	1.36
1993	1.31	1.46	1.34	1.46	1.49	1.05	1.75	1.45	1.05	1.22	1.47	1.75	1.39	1.40
1994	1.34	1.52	1.38	1.50	1.54	1.05	1.86	1.51	1.09	1.25	1.54	1.83	1.42	1.44
1995	1.38	1.59	1.43	1.56	1.60	1.04	1.98	1.57	1.12	1.29	1.61	1.91	1.45	1.48
1996	1.41	1.66	1.47	1.61	1.67	1.04	2.08	1.62	1.16	1.32	1.68	2.00	1.48	1.52
1997	1.45	1.73	1.52	1.66	1.74	1.04	2.18	1.68	1.21	1.36	1.76	2.09	1.51	1.56
1998	1.49	1.80	1.57	1.72	1.81	1.04	2.28	1.73	1.25	1.40	1.84	2.18	1.55	1.60
1999	1.53	1.88	1.62	1.78	1.88	1.04	2.39	1.79	1.29	1.44	1.92	2.28	1.58	1.65
2000	1.56	1.96	1.67	1.84	1.96	1.03	2.51	1.85	1.34	1.48	2.00	2.38	1.62	1.70

ANNUAL RATES OF GROWTH

1981-1985	1.71%	.25%	.25%	1.23%	-.25%	1.23%	1.47%	-1.02%	-6.33%	-2.06%	-1.02%	2.41%	.99%	2.41%
1985-1990	2.49%	5.02%	3.85%	4.68%	5.92%	.00%	6.47%	5.92%	4.07%	4.01%	6.09%	6.82%	4.56%	3.24%
1990-1995	2.66%	4.27%	3.23%	3.40%	3.92%	-.19%	6.43%	4.17%	3.57%	2.87%	4.53%	4.54%	2.21%	2.79%
1995-2000	2.48%	4.27%	3.15%	3.36%	4.14%	-.19%	4.86%	3.34%	3.65%	2.79%	4.43%	4.50%	2.24%	2.81%
1981-2000	2.37%	3.61%	2.74%	3.26%	3.61%	.16%	4.96%	3.29%	1.55%	2.08%	3.72%	4.67%	2.57%	2.83%

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#37 -- ADDABBO - HEINZ SCENARIO                                                              FRI, MAY 13, 1983,  3:37 PM

PA-EAST  (REGION=Middle Atlantic      )

                                                WAGE INDEXES BY 2-DIGIT SIC
                                                ---------------------------

                                                                            PRIMARY  FABRIC.           ELECTRIC
YEAR      FOOD  TEXTILE   LUMBER     PAPER CHEMICAL   PETROL   RUBBER    STONE    METAL    METAL  MACHINE  MACHINE   TRANSP    OTHER
----   -------  -------  -------   ------- -------   -------  -------  -------  -------  -------  -------  -------  -------  -------
1981      1.00     1.00     1.00      1.00     1.00     1.00     1.00     1.00     1.00     1.00     1.00     1.00     1.00     1.00
1982      1.02     1.02     1.02      1.02     1.02     1.02     1.02     1.02     1.02     1.02     1.02     1.02     1.02     1.02
1983      1.04     1.04     1.04      1.04     1.04     1.04     1.04     1.04     1.04     1.04     1.04     1.04     1.04     1.04
1984      1.06     1.06     1.06      1.66     1.06     1.06     1.06     1.06     1.06     1.06     1.06     1.06     1.06     1.06
1985      1.08     1.08     1.08      1.08     1.08     1.08     1.08     1.08     1.08     1.08     1.08     1.08     1.08     1.08
1986      1.10     1.10     1.10      1.10     1.10     1.10     1.10     1.10     1.10     1.10     1.10     1.10     1.10     1.10
1987      1.13     1.13     1.13      1.13     1.13     1.13     1.13     1.13     1.13     1.13     1.13     1.13     1.13     1.13
1988      1.15     1.15     1.15      1.15     1.15     1.15     1.15     1.15     1.15     1.15     1.15     1.15     1.15     1.15
1989      1.17     1.17     1.17      1.17     1.17     1.17     1.17     1.17     1.17     1.17     1.17     1.17     1.17     1.17
1990      1.20     1.20     1.20      1.20     1.20     1.20     1.20     1.20     1.20     1.20     1.20     1.20     1.20     1.20
1991      1.22     1.22     1.22      1.22     1.22     1.22     1.22     1.22     1.22     1.22     1.22     1.22     1.22     1.22
1992      1.24     1.24     1.24      1.24     1.24     1.24     1.24     1.24     1.24     1.24     1.24     1.24     1.24     1.24
1993      1.27     1.27     1.27      1.27     1.27     1.27     1.27     1.27     1.27     1.27     1.27     1.27     1.27     1.27
1994      1.29     1.29     1.29      1.29     1.29     1.29     1.29     1.29     1.29     1.29     1.29     1.29     1.29     1.29
1995      1.32     1.32     1.32      1.32     1.32     1.32     1.32     1.32     1.32     1.32     1.32     1.32     1.32     1.32
1996      1.35     1.35     1.35      1.35     1.35     1.35     1.35     1.35     1.35     1.35     1.35     1.35     1.35     1.35
1997      1.37     1.37     1.37      1.37     1.37     1.37     1.37     1.37     1.37     1.37     1.37     1.37     1.37     1.37
1998      1.40     1.40     1.40      1.40     1.40     1.40     1.40     1.40     1.40     1.40     1.40     1.40     1.40     1.40
1999      1.43     1.43     1.43      1.43     1.43     1.43     1.43     1.43     1.43     1.43     1.43     1.43     1.43     1.43
2000      1.46     1.46     1.46      1.46     1.46     1.46     1.46     1.46     1.46     1.46     1.46     1.46     1.46     1.46


ANNUAL RATES OF GROWTH
----------------------

1981-1985 2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%
1985-1990 2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%
1990-1995 2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%
1995-2000 2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%

1981-2000 2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%
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037 -- ADDABBO - HEINZ SCENARIO                                                   FRI, MAY 13, 1983,  3:37 PM

PA-WEST  (REGION=Middle Atlantic      )

                                             DEMOGRAPHIC DATA
                                             ----------------

                                                                 --RATIO OF TOTAL COMMERCIAL ACTIVITY--
                      HOUSE-   PERSONAL                    URBAN  --------------------------------------  NON-MFG/
     YEAR    PEOPLE    HOLDS     INCOME INCOME/HH    APTS  RATIO   MINING  AGRICULT    TRANSP CONSTRUCT  TOT EARN
 --------  --------  --------  -------- --------  -------- --------  -------- --------  -------- --------  --------
                              ($000,000) ($1981/HH) ---------------------------(RATIOS)--------------------------------
     1981   5931720   2136882     26526    12413     .0043   1.0000     .0010    .0130     .1041    .0910     .6690
     1982   5929939   2163593     26128    12076     .0055   1.0000     .0010    .0126     .1036    .0912     .6719
     1983   5928160   2190638     26912    12285     .0068   1.0000     .0010    .0123     .1031    .0907     .6741
     1984   5926381   2218022     28096    12667     .0081   1.0000     .0010    .0120     .1026    .0901     .6762
     1985   5924602   2245747     29220    13011     .0094   1.0000     .0010    .0117     .1021    .0896     .6783
     1986   5929341   2266857     30184    13315     .0907   1.0000     .0009    .0113     .1016    .0891     .6804
     1987   5934085   2288165     31180    13627     .0921   1.0000     .0009    .0110     .1011    .0886     .6825
     1988   5938832   2309674     32209    13945     .0934   1.0000     .0009    .0107     .1006    .0881     .6846
     1989   5943582   2331383     33272    14271     .0948   1.0000     .0009    .0105     .1002    .0875     .6866
     1990   5948336   2353298     34370    14605     .0962   1.0000     .0009    .0102     .0997    .0870     .6887
     1991   5960233   2374242     35332    14882     .0976   1.0000     .0009    .0099     .0992    .0865     .6908
     1992   5972155   2395373     36322    15163     .0991   1.0000     .0009    .0096     .0987    .0860     .6929
     1993   5984100   2416691     37339    15450     .1005   1.0000     .0009    .0094     .0982    .0855     .6950
     1994   5996067   2438199     38384    15743     .1020   1.0000     .0009    .0091     .0977    .0850     .6972
     1995   6008060   2459908     39459    16041     .1035   1.0000     .0009    .0088     .0972    .0845     .6993
     1996   6020077   2481793     40564    16345     .1050   1.0000     .0009    .0086     .0968    .0841     .7014
     1997   6032118   2503880     41700    16654     .1066   1.0000     .0009    .0083     .0963    .0836     .7036
     1998   6044183   2526165     42867    16969     .1082   1.0000     .0009    .0081     .0958    .0831     .7057
     1999   6056272   2548647     44068    17291     .1098   1.0000     .0009    .0079     .0953    .0826     .7079
     2000   6068385   2571331     45301    17618     .1114   1.0000     .0009    .0076     .0948    .0822     .7101


ANNUAL RATES OF GROWTH
----------------------

1981-1985      -.03%     1.25%     2.45%     1.10%     1.48%      .00%      .00%    -2.60%     -.48%     -.60%      .32%
1985-1990       .08%      .94%     3.30%     2.34%     1.48%      .00%    -2.09%    -2.71%     -.47%     -.59%      .30%
1990-1995       .20%      .89%     2.80%     1.89%     1.47%      .00%      .00%    -2.91%     -.51%     -.58%      .31%
1995-2000       .20%      .89%     2.80%     1.89%     1.48%      .00%      .00%    -2.89%     -.50%     -.55%      .31%

1981-2000       .12%      .98%     2.86%     1.86%     1.48%      .00%     -.55%    -2.79%     -.49%     -.58%      .31%
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#37 -- ADDABBO - HEINZ SCENARIO                                                                              FRI, MAY 13, 1983,  3:37 PM

PA-WEST  (REGION=Middle Atlantic      )

                                                       ENERGY PRICES
                                                       -------------

                                GAS                               ELECTRIC                          PETROLEUM
                  ------------------------------  ------------------------------  ------------------------------
     YEAR      RESIDENT    COMMERC    INDUSTR    RESIDENT    COMMERC    INDUSTR    RESIDENT    COMMERC    INDUSTR        COAL        LPG
  --------     --------    --------   --------   --------    --------   --------   --------    --------   --------     --------    --------
               -------( $1981/MMBTU)-------($1981/KWH) ----( INDEX)------($1981/GAL) -----( INDEX)-----  ( INDEX)($1981/GAL)

     1981         3.84       3.58       3.32      .0642       .0616      .0451      1.2050      100.00     100.00       100.00       .4800
     1982         4.40       4.14       3.88      .0669       .0642      .0470      1.1027       91.51      91.51       103.00       .5050
     1983         4.53       4.27       4.01      .0665       .0638      .0466       .9820       81.49      81.49       106.09       .5312
     1984         4.47       4.21       3.95      .0684       .0657      .0480       .9538       79.15      79.15       109.27       .5588
     1985         4.31       4.05       3.79      .0712       .0683      .0500       .9376       77.81      77.81       112.55       .5879
     1986         4.32       4.06       3.80      .0734       .0705      .0515       .9442       78.36      78.36       115.93       .6185
     1987         4.55       4.29       4.03      .0747       .0717      .0524       .9508       78.91      78.91       119.41       .6506
     1988         4.96       4.70       4.44      .0737       .0708      .0517       .9575       79.46      79.46       122.99       .6845
     1989         5.41       5.15       4.89      .0733       .0703      .0514       .9642       80.01      80.01       126.68       .7201
     1990         5.74       5.48       5.22      .0732       .0703      .0514       .9709       80.58      80.58       130.48       .7575
     1991         5.90       5.64       5.38      .0741       .0711      .0520       .9826       81.54      81.54       134.39       .7969
     1992         5.89       5.63       5.37      .0747       .0717      .0524       .9944       82.52      82.52       138.42       .8383
     1993         5.84       5.58       5.32      .0741       .0712      .0520      1.0063       83.51      83.51       142.58       .8819
     1994         5.92       5.66       5.40      .0737       .0707      .0517      1.0184       84.51      84.51       146.85       .9278
     1995         6.06       5.80       5.54      .0711       .0682      .0499      1.0306       85.53      85.53       151.26       .9760
     1996         6.29       6.03       5.77      .0710       .0681      .0498      1.0512       87.24      87.24       155.80      1.0268
     1997         6.52       6.26       6.00      .0708       .0680      .0497      1.0722       88.98      88.98       160.47      1.0802
     1998         6.75       6.49       6.23      .0706       .0678      .0496      1.0937       90.76      90.76       165.28      1.1363
     1999         7.02       6.76       6.50      .0701       .0673      .0492      1.1156       92.58      92.58       170.24      1.1954
     2000         7.31       7.05       6.79      .0694       .0666      .0487      1.1379       94.43      94.43       175.35      1.2576


ANNUAL RATES OF GROWTH
---------------------

1981-1985        2.93%      3.13%      3.37%      2.62%       2.62%      2.62%      -6.08%      -6.08%     -6.08%        3.00%       5.20%
1985-1990        5.90%      6.23%      6.61%       .57%        .56%       .56%        .70%        .70%       .70%        3.00%       5.20%
1990-1995        1.09%      1.14%      1.20%      -.59%       -.59%      -.59%       1.20%       1.20%      1.20%        3.00%       5.20%
1995-2000        3.82%      3.98%      4.15%      -.48%       -.48%      -.48%       2.00%       2.00%      2.00%        3.00%       5.20%

1981-2000        3.45%      3.63%      3.84%       .41%        .41%       .41%       -.30%       -.30%      -.30%        3.00%       5.20%
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#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

PA-WEST (REGION=Middle Atlantic)

VALUE ADDED INDEXES BY 2-DIGIT SIC

YEAR	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1981	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1982	.99	.89	.91	.93	.88	1.01	.90	.85	.65	.82	.81	.95	.95	.92
1983	1.01	.93	.94	.97	.92	1.02	.95	.88	.69	.85	.86	1.00	.98	.98
1984	1.04	.97	.97	1.01	.95	1.04	1.00	.92	.73	.89	.91	1.05	1.01	1.04
1985	1.07	1.01	1.01	1.05	.99	1.05	1.06	.96	.77	.92	.96	1.10	1.04	1.10
1986	1.10	1.06	1.05	1.10	1.05	1.05	1.13	1.01	.81	.96	1.02	1.18	1.09	1.14
1987	1.12	1.11	1.09	1.15	1.11	1.05	1.20	1.07	.84	1.00	1.08	1.26	1.14	1.17
1988	1.15	1.17	1.13	1.20	1.18	1.05	1.28	1.14	.87	1.04	1.15	1.34	1.19	1.21
1989	1.18	1.23	1.17	1.26	1.25	1.05	1.36	1.21	.91	1.08	1.22	1.43	1.24	1.25
1990	1.21	1.29	1.22	1.32	1.32	1.05	1.45	1.28	.94	1.12	1.29	1.53	1.30	1.29
1991	1.24	1.34	1.26	1.36	1.38	1.05	1.54	1.33	.98	1.15	1.35	1.60	1.33	1.33
1992	1.27	1.40	1.30	1.41	1.43	1.05	1.64	1.39	1.01	1.19	1.41	1.67	1.36	1.36
1993	1.31	1.46	1.34	1.46	1.49	1.05	1.75	1.45	1.05	1.22	1.47	1.75	1.39	1.40
1994	1.34	1.52	1.38	1.50	1.54	1.05	1.86	1.51	1.09	1.25	1.54	1.83	1.42	1.44
1995	1.38	1.59	1.43	1.56	1.60	1.04	1.98	1.57	1.12	1.29	1.61	1.91	1.45	1.48
1996	1.41	1.66	1.47	1.61	1.67	1.04	2.00	1.62	1.16	1.32	1.68	2.00	1.48	1.52
1997	1.45	1.73	1.52	1.66	1.74	1.04	2.10	1.68	1.21	1.36	1.76	2.09	1.51	1.56
1998	1.49	1.80	1.57	1.72	1.81	1.04	2.28	1.73	1.25	1.40	1.84	2.18	1.55	1.60
1999	1.53	1.88	1.62	1.78	1.88	1.04	2.39	1.79	1.29	1.44	1.92	2.28	1.58	1.65
2000	1.56	1.96	1.67	1.84	1.96	1.03	2.51	1.85	1.34	1.48	2.00	2.38	1.62	1.70

ANNUAL RATES OF GROWTH

1981-1985	1.71%	.25%	.25%	1.23%	-.25%	1.23%	1.47%	-1.02%	-6.33%	-2.06%	-1.02%	2.41%	.99%	2.41%
1985-1990	2.49%	5.02%	3.85%	4.68%	5.92%	.00%	6.47%	5.92%	4.07%	4.01%	6.09%	6.82%	4.56%	3.24%
1990-1995	2.66%	4.27%	3.23%	3.40%	3.92%	-.19%	6.43%	4.17%	3.57%	2.87%	4.53%	4.54%	2.21%	2.79%
1995-2000	2.48%	4.27%	3.15%	3.36%	4.14%	-.19%	4.86%	3.34%	3.65%	2.79%	4.43%	4.50%	2.24%	2.81%
1981-2000	2.37%	3.61%	2.74%	3.26%	3.61%	.16%	4.96%	3.29%	1.55%	2.08%	3.72%	4.67%	2.57%	2.83%

#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

PA-WEST (REGION=Middle Atlantic)

WAGE INDEXES BY 2-DIGIT SIC

YEAR	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1981	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1982	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
1983	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
1984	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
1985	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08
1986	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
1987	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13
1988	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15
1989	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17
1990	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
1991	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22
1992	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24
1993	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27
1994	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29
1995	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32
1996	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35
1997	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37
1998	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40
1999	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43
2000	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46

ANNUAL RATES OF GROWTH

1981-1985	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1985-1990	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1990-1995	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1995-2000	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1981-2000	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%

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#37 -- ADDABBO - HEINZ SCENARIO                                                                    FRI, MAY 13, 1983,  3:37 PM

RH. ISL. (REGION=New England        )

                                                        DEMOGRAPHIC DATA
                                                        ----------------

                                                                                --RATIO OF TOTAL COMMERCIAL ACTIVITY--
                                HOUSE-  PERSONAL                            URBAN  ------------------------------------------  NON-MFG/
   YEAR       PEOPLE     HOLDS     INCOME  INCOME/HH       APTS     RATIO    MINING  AGRICULT     TRANSP  CONSTRUCT  TOT EARN
 --------   --------  --------  --------   --------   --------  --------  --------  --------   --------   --------  --------
                                ($000,000) ($1981/HH) ----------------------------(RATIOS)-----------------------------------
   1981      950939    344424      9676      28093      .1635    1.0000     .0007     .0052      .0724      .0832     .7251
   1982      953887    349935      9531      27236      .1658    1.0000     .0007     .0051      .0722      .0827     .7280
   1983      956844    355534      9817      27611      .1683    1.0000     .0006     .0049      .0719      .0821     .7308
   1984      959809    361223     10249      28372      .1708    1.0000     .0006     .0048      .0717      .0816     .7336
   1985      962785    367002     10659      29043      .1732    1.0000     .0006     .0047      .0715      .0810     .7364
   1986      971931    373644     11010      29468      .1759    1.0000     .0006     .0045      .0713      .0805     .7392
   1987      981165    380408     11374      29899      .1785    1.0000     .0006     .0044      .0711      .0799     .7419
   1988      990485    387293     11749      30336      .1811    1.0000     .0006     .0043      .0709      .0794     .7447
   1989      999895    394303     12137      30780      .1837    1.0000     .0006     .0042      .0707      .0789     .7473
   1990     1009394    401440     12537      31231      .1865    1.0000     .0006     .0041      .0705      .0784     .7500
   1991     1016459    407060     12888      31662      .1893    1.0000     .0006     .0040      .0703      .0779     .7527
   1992     1023575    412759     13249      32099      .1922    1.0000     .0006     .0039      .0701      .0774     .7554
   1993     1030740    418538     13620      32542      .1951    1.0000     .0006     .0038      .0699      .0769     .7582
   1994     1037955    424397     14002      32992      .1980    1.0000     .0006     .0037      .0697      .0764     .7609
   1995     1045220    430339     14394      33447      .2009    1.0000     .0006     .0036      .0695      .0759     .7636
   1996     1052538    436363     14797      33909      .2040    1.0000     .0006     .0035      .0693      .0755     .7664
   1997     1059905    442472     15211      34377      .2070    1.0000     .0006     .0035      .0691      .0750     .7692
   1998     1067324    448667     15637      34852      .2102    1.0000     .0006     .0034      .0689      .0745     .7720
   1999     1074796    454948     16075      35333      .2133    1.0000     .0006     .0033      .0687      .0740     .7747
   2000     1082319    461318     16525      35821      .2165    1.0000     .0006     .0032      .0685      .0736     .7775


ANNUAL RATES OF GROWTH
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1981-1985         .31%     1.60%     2.45%       .83%     1.45%      .00%    -3.78%    -2.50%      -.31%      -.67%      .39%
1985-1990         .95%     1.81%     3.30%      1.46%     1.49%      .00%      .00%    -2.69%      -.28%      -.65%      .37%
1990-1995         .70%     1.40%     2.80%      1.38%     1.50%      .00%      .00%    -2.57%      -.29%      -.65%      .36%
1995-2000         .70%     1.40%     2.80%      1.38%     1.51%      .00%      .00%    -2.33%      -.29%      -.61%      .36%

1981-2000         .68%     1.55%     2.86%      1.29%     1.49%      .00%     -.81%    -2.52%      -.29%      -.64%      .37%
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#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

RH. ISL. (REGION=New England)

ENERGY PRICES

	GAS			ELECTRIC			PETROLEUM				
YEAR	RESIDENT	COMMERC	INDUSTR	RESIDENT	COMMERC	INDUSTR	RESIDENT	COMMERC	INDUSTR	COAL	LPG
	($1981/MMBTU)			($1981/KWH)	(INDEX)		($1981/GAL)	(INDEX)		(INDEX)	($1981/GAL)
1981	6.15	5.79	4.95	.0890	.0867	.0705	1.2050	100.00	100.00	100.00	.4800
1982	6.71	6.35	5.51	.0940	.0916	.0745	1.1027	91.51	91.51	103.00	.5050
1983	6.84	6.48	5.64	.0950	.0925	.0752	.9820	81.49	81.49	106.09	.5312
1984	6.78	6.42	5.58	.0973	.0946	.0770	.9538	79.15	79.15	109.27	.5588
1985	6.62	6.26	5.42	.1038	.1011	.0822	.9376	77.81	77.81	112.55	.5879
1986	6.63	6.27	5.43	.1025	.0998	.0811	.9442	78.36	78.36	115.93	.6185
1987	6.86	6.50	5.66	.1118	.1089	.0885	.9508	78.91	78.91	119.41	.6506
1988	7.27	6.91	6.07	.1077	.1049	.0853	.9575	79.46	79.46	122.99	.6845
1989	7.72	7.36	6.52	.1048	.1021	.0830	.9642	80.01	80.01	126.68	.7201
1990	8.05	7.69	6.85	.1041	.1014	.0824	.9709	80.58	80.58	130.48	.7575
1991	8.21	7.85	7.01	.1049	.1022	.0831	.9826	81.54	81.54	134.39	.7969
1992	8.20	7.84	7.00	.1027	.1000	.0813	.9944	82.52	82.52	138.42	.8383
1993	8.15	7.79	6.95	.0997	.0971	.0789	1.0063	83.51	83.51	142.58	.8819
1994	8.23	7.87	7.03	.0970	.0945	.0768	1.0184	84.51	84.51	146.85	.9278
1995	8.37	8.01	7.17	.0927	.0903	.0734	1.0306	85.53	85.53	151.26	.9760
1996	8.60	8.24	7.40	.0907	.0884	.0719	1.0512	87.24	87.24	155.80	1.0268
1997	8.83	8.47	7.63	.0890	.0867	.0705	1.0722	88.98	88.98	160.47	1.0802
1998	9.06	8.70	7.86	.0888	.0865	.0703	1.0937	90.76	90.76	165.28	1.1363
1999	9.33	8.97	8.13	.0870	.0848	.0689	1.1156	92.58	92.58	170.24	1.1954
2000	9.62	9.26	8.42	.0860	.0837	.0680	1.1379	94.43	94.43	175.35	1.2576

ANNUAL RATES OF GROWTH

1981-1985	1.86%	1.97%	2.29%	3.91%	3.91%	3.91%	-6.08%	-6.08%	-6.08%	3.00%	5.20%
1985-1990	3.99%	4.20%	4.79%	.06%	.06%	.06%	.70%	.70%	.70%	3.00%	5.20%
1990-1995	.78%	.82%	.92%	-2.29%	-2.29%	-2.29%	1.20%	1.20%	1.20%	3.00%	5.20%
1995-2000	2.82%	2.94%	3.27%	-1.50%	-1.50%	-1.50%	2.00%	2.00%	2.00%	3.00%	5.20%
1981-2000	2.38%	2.50%	2.84%	-.18%	-.18%	-.18%	-.30%	-.30%	-.30%	3.00%	5.20%

#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

RH. ISL. (REGION=New England)

VALUE ADDED INDEXES BY 2-DIGIT SIC

YEAR	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1981	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1982	.99	.89	.91	.93	.88	1.01	.90	.85	.65	.82	.81	.95	.95	.92
1983	1.01	.93	.94	.97	.92	1.02	.95	.88	.69	.85	.86	1.00	.98	.98
1984	1.04	.97	.97	1.01	.95	1.04	1.00	.92	.73	.89	.91	1.05	1.01	1.04
1985	1.07	1.01	1.01	1.05	.99	1.05	1.06	.96	.77	.92	.96	1.10	1.04	1.10
1986	1.10	1.06	1.05	1.10	1.05	1.05	1.13	1.01	.81	.96	1.02	1.18	1.09	1.14
1987	1.12	1.11	1.09	1.15	1.11	1.05	1.20	1.07	.84	1.00	1.08	1.26	1.14	1.17
1988	1.15	1.17	1.13	1.20	1.18	1.05	1.28	1.14	.87	1.04	1.15	1.34	1.19	1.21
1989	1.18	1.23	1.17	1.26	1.25	1.05	1.36	1.21	.91	1.08	1.22	1.43	1.24	1.25
1990	1.21	1.29	1.22	1.32	1.32	1.05	1.45	1.28	.94	1.12	1.29	1.53	1.30	1.29
1991	1.24	1.34	1.26	1.36	1.38	1.05	1.54	1.33	.98	1.15	1.35	1.60	1.33	1.33
1992	1.27	1.40	1.30	1.41	1.43	1.05	1.64	1.39	1.01	1.19	1.41	1.67	1.36	1.36
1993	1.31	1.46	1.34	1.46	1.49	1.05	1.75	1.45	1.05	1.22	1.47	1.75	1.39	1.40
1994	1.34	1.52	1.38	1.50	1.54	1.05	1.86	1.51	1.09	1.25	1.54	1.83	1.42	1.44
1995	1.38	1.59	1.43	1.56	1.60	1.04	1.98	1.57	1.12	1.29	1.61	1.91	1.45	1.48
1996	1.41	1.66	1.47	1.61	1.67	1.04	2.08	1.62	1.16	1.32	1.68	2.00	1.48	1.52
1997	1.45	1.73	1.52	1.66	1.74	1.04	2.18	1.68	1.21	1.36	1.76	2.09	1.51	1.56
1998	1.49	1.80	1.57	1.72	1.81	1.04	2.28	1.73	1.25	1.40	1.84	2.18	1.55	1.60
1999	1.53	1.88	1.62	1.78	1.88	1.04	2.39	1.79	1.29	1.44	1.92	2.28	1.58	1.65
2000	1.56	1.96	1.67	1.84	1.96	1.03	2.51	1.85	1.34	1.48	2.00	2.38	1.62	1.70

ANNUAL RATES OF GROWTH

1981-1985	1.71%	.25%	.25%	1.23%	-.25%	1.23%	1.47%	-1.02%	-6.33%	-2.06%	-1.02%	2.41%	.99%	2.41%
1985-1990	2.49%	5.02%	3.85%	4.68%	5.92%	.00%	6.47%	5.92%	4.07%	4.01%	6.09%	6.82%	4.56%	3.24%
1990-1995	2.66%	4.27%	3.23%	3.40%	3.92%	-.19%	6.43%	4.17%	3.57%	2.87%	4.53%	4.54%	2.21%	2.79%
1995-2000	2.48%	4.27%	3.15%	3.36%	4.14%	-.19%	4.86%	3.34%	3.65%	2.79%	4.43%	4.50%	2.24%	2.81%
1981-2000	2.37%	3.61%	2.74%	3.26%	3.61%	.16%	4.96%	3.29%	1.55%	2.08%	3.72%	4.67%	2.57%	2.83%

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#37 -- ADDABBO - HEINZ SCENARIO                                                          FRI, MAY 13, 1983,  3:37 PM

RH. ISL. (REGION=New England        )

                                        WAGE INDEXES BY 2-DIGIT SIC
                                        ---------------------------

                                                                              PRIMARY  FABRIC.           ELECTRIC
YEAR      FOOD  TEXTILE   LUMBER     PAPER CHEMICAL   PETROL   RUBBER    STONE   METAL    METAL  MACHINE  MACHINE   TRANSP    OTHER
----   -------  -------  -------   -------  -------  -------  -------  -------  -------  -------  -------  -------  -------  -------
1981      1.00     1.00     1.00      1.00     1.00     1.00     1.00     1.00     1.00     1.00     1.00     1.00     1.00     1.00
1982      1.02     1.02     1.02      1.02     1.02     1.02     1.02     1.02     1.02     1.02     1.02     1.02     1.02     1.02
1983      1.04     1.04     1.04      1.04     1.04     1.04     1.04     1.04     1.04     1.04     1.04     1.04     1.04     1.04
1984      1.06     1.06     1.06      1.06     1.06     1.06     1.06     1.06     1.06     1.06     1.06     1.06     1.06     1.06
1985      1.08     1.08     1.08      1.08     1.08     1.08     1.08     1.08     1.08     1.08     1.08     1.08     1.08     1.08
1986      1.10     1.10     1.10      1.10     1.10     1.10     1.10     1.10     1.10     1.10     1.10     1.10     1.10     1.10
1987      1.13     1.13     1.13      1.13     1.13     1.13     1.13     1.13     1.13     1.13     1.13     1.13     1.13     1.13
1988      1.15     1.15     1.15      1.15     1.15     1.15     1.15     1.15     1.15     1.15     1.15     1.15     1.15     1.15
1989      1.17     1.17     1.17      1.17     1.17     1.17     1.17     1.17     1.17     1.17     1.17     1.17     1.17     1.17
1990      1.20     1.20     1.20      1.20     1.20     1.20     1.20     1.20     1.20     1.20     1.20     1.20     1.20     1.20
1991      1.22     1.22     1.22      1.22     1.22     1.22     1.22     1.22     1.22     1.22     1.22     1.22     1.22     1.22
1992      1.24     1.24     1.24      1.24     1.24     1.24     1.24     1.24     1.24     1.24     1.24     1.24     1.24     1.24
1993      1.27     1.27     1.27      1.27     1.27     1.27     1.27     1.27     1.27     1.27     1.27     1.27     1.27     1.27
1994      1.29     1.29     1.29      1.29     1.29     1.29     1.29     1.29     1.29     1.29     1.29     1.29     1.29     1.29
1995      1.32     1.32     1.32      1.32     1.32     1.32     1.32     1.32     1.32     1.32     1.32     1.32     1.32     1.32
1996      1.35     1.35     1.35      1.35     1.35     1.35     1.35     1.35     1.35     1.35     1.35     1.35     1.35     1.35
1997      1.37     1.37     1.37      1.37     1.37     1.37     1.37     1.37     1.37     1.37     1.37     1.37     1.37     1.37
1998      1.40     1.40     1.40      1.40     1.40     1.40     1.40     1.40     1.40     1.40     1.40     1.40     1.40     1.40
1999      1.43     1.43     1.43      1.43     1.43     1.43     1.43     1.43     1.43     1.43     1.43     1.43     1.43     1.43
2000      1.46     1.46     1.46      1.46     1.46     1.46     1.46     1.46     1.46     1.46     1.46     1.46     1.46     1.46


ANNUAL RATES OF GROWTH
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1981-1985 2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%
1985-1990 2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%
1990-1995 2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%
1995-2000 2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%

1981-2000 2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%
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#37 -- ADDABBO - HEINZ SCENARIO                                                          FRI, MAY 13, 1983,  3:37 PM

S. CARO. (REGION=South Atlantic       )

                                                 DEMOGRAPHIC DATA
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                                                                              --RATIO OF TOTAL COMMERCIAL ACTIVITY--
                          HOUSE-  PERSONAL                               URBAN  ------------------------------------  NON-MFG/
    YEAR     PEOPLE        HOLDS    INCOME INCOME/HH         APTS        RATIO    MINING  AGRICULT     TRANSP CONSTRUCT  TOT EARN
 --------   --------   --------   -------- --------    --------    --------   --------  --------   -------- --------   --------
                                 ($000,000) ($1981/HH) ---------------------------(RATIOS)-------------------------------------
    1981    3152685    1054514     25457     24141      .0879      1.0000      .0025     .0366      .0761     .0919      .6624
    1982    3186733    1079610     25075     23226      .0890      1.0000      .0025     .0354      .0761     .0916      .6634
    1983    3221150    1105306     25827     23367      .0904      1.0000      .0025     .0343      .0760     .0913      .6644
    1984    3255939    1131612     26964     23828      .0918      1.0000      .0024     .0333      .0760     .0910      .6654
    1985    3291102    1158544     28042     24205      .0931      1.0000      .0024     .0323      .0760     .0907      .6664
    1986    3331582    1182873     28968     24489      .0945      1.0000      .0024     .0313      .0760     .0904      .6674
    1987    3372561    1207713     29924     24777      .0958      1.0000      .0023     .0303      .0759     .0901      .6684
    1988    3414043    1233076     30911     25068      .0974      1.0000      .0023     .0294      .0759     .0898      .6693
    1989    3456036    1258970     31931     25363      .0987      1.0000      .0023     .0284      .0759     .0896      .6703
    1990    3498546    1285408     32985     25661      .1002      1.0000      .0022     .0276      .0759     .0893      .6713
    1991    3530733    1306232     33909     25959      .1018      1.0000      .0021     .0268      .0759     .0890      .6723
    1992    3563217    1327394     34858     26260      .1033      1.0000      .0020     .0261      .0759     .0887      .6733
    1993    3595999    1348897     35834     26565      .1050      1.0000      .0019     .0253      .0759     .0884      .6743
    1994    3629083    1370749     36837     26874      .1065      1.0000      .0018     .0246      .0759     .0881      .6753
    1995    3662471    1392956     37869     27186      .1082      1.0000      .0018     .0239      .0759     .0878      .6763
    1996    3696165    1415522     38929     27502      .1099      1.0000      .0017     .0233      .0759     .0875      .6773
    1997    3730170    1438453     40019     27821      .1116      1.0000      .0016     .0226      .0759     .0872      .6783
    1998    3764487    1461756     41140     28144      .1133      1.0000      .0015     .0220      .0759     .0869      .6794
    1999    3799120    1485436     42292     28471      .1152      1.0000      .0015     .0213      .0759     .0866      .6804
    2000    3834073    1509500     43476     28801      .1169      1.0000      .0014     .0207      .0759     .0864      .6814


ANNUAL RATES OF GROWTH
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1981-1985        1.08%      2.38%      2.45%       .07%      1.45%        .00%    -1.02%    -3.08%      -.03%     -.33%       .15%
1985-1990        1.23%      2.10%      3.30%      1.18%      1.48%        .00%    -1.73%    -3.10%      -.03%     -.31%       .15%
1990-1995         .92%      1.62%      2.80%      1.16%      1.55%        .00%    -3.93%    -2.84%       .00%     -.34%       .15%
1995-2000         .92%      1.62%      2.80%      1.16%      1.56%        .00%    -4.90%    -2.83%       .00%     -.32%       .15%

1981-2000        1.04%      1.91%      2.86%       .93%      1.51%        .00%    -3.01%    -2.95%      -.01%     -.32%       .15%
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#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

S. CARO. (REGION=South Atlantic)

ENERGY PRICES

	GAS			ELECTRIC			PETROLEUM				
YEAR	RESIDENT	COMMERC	INDUSTR	RESIDENT	COMMERC	INDUSTR	RESIDENT	COMMERC	INDUSTR	COAL	LPG
	($1981/MMBTU)			($1981/KWH)	(INDEX)		($1981/GAL)	(INDEX)		(INDEX)	($1981/GAL)
1981	4.78	3.88	3.87	.0524	.0517	.0368	1.2050	100.00	100.00	100.00	.4800
1982	5.34	4.44	4.43	.0598	.0590	.0420	1.1027	91.51	91.51	103.00	.5050
1983	5.47	4.57	4.56	.0593	.0585	.0416	.9820	81.49	81.49	106.09	.5312
1984	5.41	4.51	4.50	.0625	.0617	.0439	.9538	79.15	79.15	109.27	.5588
1985	5.25	4.35	4.34	.0633	.0625	.0445	.9376	77.81	77.81	112.55	.5879
1986	5.26	4.36	4.35	.0652	.0643	.0458	.9442	78.36	78.36	115.93	.6185
1987	5.49	4.59	4.58	.0637	.0628	.0447	.9508	78.91	78.91	119.41	.6506
1988	5.90	5.00	4.99	.0668	.0659	.0469	.9575	79.46	79.46	122.99	.6845
1989	6.35	5.45	5.44	.0681	.0672	.0479	.9642	80.01	80.01	126.68	.7201
1990	6.68	5.78	5.77	.0701	.0691	.0492	.9709	80.58	80.58	130.48	.7575
1991	6.84	5.94	5.93	.0697	.0687	.0489	.9826	81.54	81.54	134.39	.7969
1992	6.83	5.93	5.92	.0736	.0726	.0517	.9944	82.52	82.52	138.42	.8383
1993	6.78	5.88	5.87	.0684	.0675	.0480	1.0063	83.51	83.51	142.58	.8819
1994	6.86	5.96	5.95	.0749	.0739	.0526	1.0184	84.51	84.51	146.85	.9278
1995	7.00	6.10	6.09	.0678	.0669	.0477	1.0306	85.53	85.53	151.26	.9760
1996	7.23	6.33	6.32	.0740	.0730	.0520	1.0512	87.24	87.24	155.80	1.0268
1997	7.46	6.56	6.55	.0688	.0679	.0484	1.0722	88.98	88.98	160.47	1.0802
1998	7.69	6.79	6.78	.0745	.0735	.0524	1.0937	90.76	90.76	165.28	1.1363
1999	7.96	7.06	7.05	.0691	.0681	.0485	1.1156	92.58	92.58	170.24	1.1954
2000	8.25	7.35	7.34	.0735	.0725	.0517	1.1379	94.43	94.43	175.35	1.2576

ANNUAL RATES OF GROWTH

1981-1985	2.37%	2.90%	2.91%	4.84%	4.83%	4.83%	-6.08%	-6.08%	-6.08%	3.00%	5.20%
1985-1990	4.94%	5.85%	5.86%	2.05%	2.05%	2.05%	.70%	.70%	.70%	3.00%	5.20%
1990-1995	.94%	1.08%	1.09%	-.65%	-.65%	-.65%	1.20%	1.20%	1.20%	3.00%	5.20%
1995-2000	3.34%	3.80%	3.80%	1.62%	1.63%	1.62%	2.00%	2.00%	2.00%	3.00%	5.20%
1981-2000	2.91%	3.42%	3.43%	1.80%	1.80%	1.80%	-.30%	-.30%	-.30%	3.00%	5.20%

037 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

S. CARO. (REGION=South Atlantic)

VALUE ADDED INDEXES BY 2-DIGIT SIC

YEAR	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1981	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1982	.99	.89	.91	.93	.88	1.01	.90	.85	.65	.82	.81	.95	.95	.92
1983	1.01	.93	.94	.97	.92	1.02	.95	.88	.69	.85	.86	1.00	.98	.98
1984	1.04	.97	.97	1.01	.95	1.04	1.00	.92	.73	.89	.91	1.05	1.01	1.04
1985	1.07	1.01	1.01	1.05	.99	1.05	1.06	.96	.77	.92	.96	1.10	1.04	1.10
1986	1.10	1.06	1.05	1.10	1.05	1.05	1.13	1.01	.81	.96	1.02	1.18	1.09	1.14
1987	1.12	1.11	1.09	1.15	1.11	1.05	1.20	1.07	.84	1.00	1.08	1.26	1.14	1.17
1988	1.15	1.17	1.13	1.20	1.18	1.05	1.28	1.14	.87	1.04	1.15	1.34	1.19	1.21
1989	1.18	1.23	1.17	1.26	1.25	1.05	1.36	1.21	.91	1.08	1.22	1.43	1.24	1.25
1990	1.21	1.29	1.22	1.32	1.32	1.05	1.45	1.28	.94	1.12	1.29	1.53	1.30	1.29
1991	1.24	1.34	1.26	1.36	1.38	1.05	1.54	1.33	.98	1.15	1.35	1.60	1.33	1.33
1992	1.27	1.40	1.30	1.41	1.43	1.05	1.64	1.39	1.01	1.19	1.41	1.67	1.36	1.36
1993	1.31	1.46	1.34	1.46	1.49	1.05	1.75	1.45	1.05	1.22	1.47	1.75	1.39	1.40
1994	1.34	1.52	1.38	1.50	1.54	1.05	1.86	1.51	1.09	1.25	1.54	1.83	1.42	1.44
1995	1.38	1.59	1.43	1.56	1.60	1.04	1.98	1.57	1.12	1.29	1.61	1.91	1.45	1.48
1996	1.41	1.66	1.47	1.61	1.67	1.04	2.08	1.62	1.16	1.32	1.68	2.00	1.48	1.52
1997	1.45	1.73	1.52	1.66	1.74	1.04	2.18	1.68	1.21	1.36	1.76	2.09	1.51	1.56
1998	1.49	1.80	1.57	1.72	1.81	1.04	2.28	1.73	1.25	1.40	1.84	2.18	1.55	1.60
1999	1.53	1.88	1.62	1.78	1.88	1.04	2.39	1.79	1.29	1.44	1.92	2.28	1.58	1.65
2000	1.56	1.96	1.67	1.84	1.96	1.03	2.51	1.85	1.34	1.48	2.00	2.38	1.62	1.70

ANNUAL RATES OF GROWTH

	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1981-1985	1.71%	.25%	.25%	1.23%	-.25%	1.23%	1.47%	-1.02%	-6.33%	-2.06%	-1.02%	2.41%	.99%	2.41%
1985-1990	2.49%	5.02%	3.85%	4.68%	5.92%	.00%	6.47%	5.92%	4.07%	4.01%	6.09%	6.82%	4.56%	3.24%
1990-1995	2.66%	4.27%	3.23%	3.40%	3.92%	-.19%	6.43%	4.17%	3.57%	2.87%	4.53%	4.54%	2.21%	2.79%
1995-2000	2.48%	4.27%	3.15%	3.36%	4.14%	-.19%	4.86%	3.34%	3.65%	2.79%	4.43%	4.50%	2.24%	2.81%
1981-2000	2.37%	3.61%	2.74%	3.26%	3.61%	.16%	4.96%	3.29%	1.55%	2.08%	3.72%	4.67%	2.57%	2.83%

#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

S. CARO. (REGION=South Atlantic)

WAGE INDEXES BY 2-DIGIT SIC

YEAR	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1981	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1982	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
1983	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
1984	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
1985	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08
1986	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
1987	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13
1988	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15
1989	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17
1990	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
1991	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22
1992	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24
1993	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27
1994	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29
1995	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32
1996	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35
1997	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37
1998	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40
1999	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43
2000	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46

ANNUAL RATES OF GROWTH

1981-1985	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1985-1990	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1990-1995	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1995-2000	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1981-2000	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%

#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

SO. DAK. (REGION=North Central)

DEMOGRAPHIC DATA

YEAR	PEOPLE	HOUSE- HOLDS	PERSONAL INCOME	INCOME/HH	APTS	URBAN RATIO	--RATIO OF TOTAL COMMERCIAL ACTIVITY-- MINING	AGRICULT	TRANSP	CONSTRUCT	NON-MFG/ TOT EARN
			($000,000)	($1981/HH)	(RATIOS)						
1981	692552	246017	6056	24616	.1064	1.0000	.0125	.2387	.0628	.0523	.9149
1982	695115	250101	5965	23851	.1081	1.0000	.0123	.2355	.0627	.0523	.9146
1983	697607	254253	6144	24165	.1097	1.0000	.0122	.2323	.0627	.0523	.9142
1984	700269	258473	6414	24817	.1114	1.0000	.0120	.2292	.0626	.0523	.9139
1985	702060	262764	6671	25388	.1129	1.0000	.0118	.2261	.0626	.0523	.9136
1986	706022	266206	6891	25887	.1146	1.0000	.0116	.2230	.0626	.0523	.9132
1987	709200	269693	7119	26395	.1163	1.0000	.0115	.2200	.0625	.0523	.9129
1988	712391	273227	7354	26914	.1180	1.0000	.0113	.2170	.0625	.0523	.9125
1989	715596	276806	7596	27442	.1199	1.0000	.0111	.2141	.0625	.0524	.9122
1990	718817	280432	7847	27981	.1216	1.0000	.0110	.2112	.0624	.0524	.9119
1991	722770	283936	8067	28410	.1233	1.0000	.0109	.2083	.0623	.0524	.9116
1992	726745	287486	8292	28845	.1250	1.0000	.0108	.2055	.0622	.0524	.9113
1993	730743	291080	8525	29286	.1269	1.0000	.0107	.2027	.0621	.0524	.9110
1994	734761	294719	8763	29734	.1286	1.0000	.0106	.2000	.0620	.0524	.9107
1995	738803	298402	9009	30190	.1305	1.0000	.0105	.1973	.0619	.0524	.9104
1996	742866	302133	9261	30652	.1324	1.0000	.0104	.1946	.0618	.0524	.9101
1997	746952	305909	9520	31121	.1342	1.0000	.0103	.1920	.0617	.0524	.9098
1998	751061	309733	9787	31597	.1361	1.0000	.0102	.1894	.0616	.0524	.9095
1999	755191	313605	10061	32081	.1382	1.0000	.0101	.1868	.0615	.0524	.9092
2000	759345	317525	10343	32572	.1400	1.0000	.0100	.1843	.0614	.0524	.9089

ANNUAL RATES OF GROWTH

1981-1985	.37%	1.66%	2.45%	.77%	1.49%	.00%	-1.43%	-1.38%	-.08%	.00%	-.04%
1985-1990	.45%	1.31%	3.30%	1.96%	1.50%	.00%	-1.39%	-1.35%	-.06%	.04%	-.04%
1990-1995	.55%	1.25%	2.80%	1.53%	1.42%	.00%	-.93%	-1.35%	-.16%	.00%	-.03%
1995-2000	.55%	1.25%	2.80%	1.53%	1.42%	.00%	-.97%	-1.35%	-.16%	.00%	-.03%
1981-2000	.49%	1.35%	2.86%	1.48%	1.45%	.00%	-1.17%	-1.35%	-.12%	.01%	-.03%

#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

SO. DAK. (REGION=North Central)

ENERGY PRICES

YEAR	GAS RESIDENT	GAS COMMERC	GAS INDUSTR	ELECTRIC RESIDENT	ELECTRIC COMMERC	ELECTRIC INDUSTR	PETROLEUM RESIDENT	PETROLEUM COMMERC	PETROLEUM INDUSTR	COAL	LPG
	($1981/MMBTU)			($1981/KWH)	(INDEX)		($1981/GAL)	(INDEX)		(INDEX)	($1981/GAL)
1981	3.85	3.43	3.28	.0602	.0554	.0306	1.2050	100.00	100.00	100.00	.4800
1982	4.41	3.99	3.84	.0691	.0635	.0351	1.1027	91.51	91.51	103.00	.5050
1983	4.54	4.12	3.97	.0685	.0629	.0348	.9820	81.49	81.49	106.09	.5312
1984	4.48	4.06	3.91	.0722	.0664	.0367	.9538	79.15	79.15	109.27	.5588
1985	4.32	3.90	3.75	.0782	.0719	.0398	.9376	77.81	77.81	112.55	.5879
1986	4.33	3.91	3.76	.0853	.0784	.0434	.9442	78.36	78.36	115.93	.6185
1987	4.56	4.14	3.99	.0840	.0772	.0427	.9508	78.91	78.91	119.41	.6506
1988	4.97	4.55	4.40	.0880	.0809	.0447	.9575	79.46	79.46	122.99	.6845
1989	5.42	5.00	4.85	.0858	.0789	.0436	.9642	80.01	80.01	126.68	.7201
1990	5.75	5.33	5.18	.0897	.0825	.0456	.9709	80.58	80.58	130.48	.7575
1991	5.91	5.49	5.34	.0886	.0814	.0450	.9826	81.54	81.54	134.39	.7969
1992	5.90	5.48	5.33	.0889	.0818	.0452	.9944	82.52	82.52	138.42	.8383
1993	5.85	5.43	5.28	.0884	.0812	.0449	1.0063	83.51	83.51	142.58	.8819
1994	5.93	5.51	5.36	.0877	.0807	.0446	1.0184	84.51	84.51	146.85	.9278
1995	6.07	5.65	5.50	.0852	.0783	.0433	1.0306	85.53	85.53	151.26	.9760
1996	6.30	5.88	5.73	.0844	.0775	.0429	1.0512	87.24	87.24	155.80	1.0268
1997	6.53	6.11	5.96	.0835	.0767	.0424	1.0722	88.98	88.98	160.47	1.0802
1998	6.76	6.34	6.19	.0827	.0760	.0420	1.0937	90.76	90.76	165.28	1.1363
1999	7.03	6.61	6.46	.0814	.0748	.0414	1.1156	92.58	92.58	170.24	1.1954
2000	7.32	6.90	6.75	.0799	.0734	.0406	1.1379	94.43	94.43	175.35	1.2576

ANNUAL RATES OF GROWTH

	GAS RESIDENT	GAS COMMERC	GAS INDUSTR	ELECTRIC RESIDENT	ELECTRIC COMMERC	ELECTRIC INDUSTR	PETROLEUM RESIDENT	PETROLEUM COMMERC	PETROLEUM INDUSTR	COAL	LPG
1981-1985	2.92%	3.26%	3.40%	6.73%	6.73%	6.73%	-6.08%	-6.08%	-6.08%	3.00%	5.20%
1985-1990	5.89%	6.45%	6.67%	2.78%	2.78%	2.78%	.70%	.70%	.70%	3.00%	5.20%
1990-1995	1.09%	1.17%	1.21%	-1.03%	-1.03%	-1.03%	1.20%	1.20%	1.20%	3.00%	5.20%
1995-2000	3.82%	4.08%	4.18%	-1.27%	-1.27%	-1.27%	2.00%	2.00%	2.00%	3.00%	5.20%
1981-2000	3.44%	3.75%	3.87%	1.50%	1.50%	1.50%	-.30%	-.30%	-.30%	3.00%	5.20%

#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

SO. DAK. (REGION=North Central)

VALUE ADDED INDEXES BY 2-DIGIT SIC

YEAR	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1981	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1982	.99	.89	.91	.93	.88	1.01	.90	.85	.65	.82	.81	.95	.95	.92
1983	1.01	.93	.94	.97	.92	1.02	.95	.88	.69	.85	.86	1.00	.98	.98
1984	1.04	.97	.97	1.01	.95	1.04	1.00	.92	.73	.89	.91	1.05	1.01	1.04
1985	1.07	1.01	1.01	1.05	.99	1.05	1.06	.96	.77	.92	.96	1.10	1.04	1.10
1986	1.10	1.06	1.05	1.10	1.05	1.05	1.13	1.01	.81	.96	1.02	1.18	1.09	1.14
1987	1.12	1.11	1.09	1.15	1.11	1.05	1.20	1.07	.84	1.00	1.08	1.26	1.14	1.17
1988	1.15	1.17	1.13	1.20	1.18	1.05	1.28	1.14	.87	1.04	1.15	1.34	1.19	1.21
1989	1.18	1.23	1.17	1.26	1.25	1.05	1.36	1.21	.91	1.08	1.22	1.43	1.24	1.25
1990	1.21	1.29	1.22	1.32	1.32	1.05	1.45	1.28	.94	1.12	1.29	1.53	1.30	1.29
1991	1.24	1.34	1.26	1.36	1.38	1.05	1.54	1.33	.98	1.15	1.35	1.60	1.33	1.33
1992	1.27	1.40	1.30	1.41	1.43	1.05	1.64	1.39	1.01	1.19	1.41	1.67	1.36	1.36
1993	1.31	1.46	1.34	1.46	1.49	1.05	1.75	1.45	1.05	1.22	1.47	1.75	1.39	1.40
1994	1.34	1.52	1.38	1.50	1.54	1.05	1.86	1.51	1.09	1.25	1.54	1.83	1.42	1.44
1995	1.38	1.59	1.43	1.56	1.60	1.04	1.98	1.57	1.12	1.29	1.61	1.91	1.45	1.48
1996	1.41	1.66	1.47	1.61	1.67	1.04	2.08	1.62	1.16	1.32	1.68	2.00	1.48	1.52
1997	1.45	1.73	1.52	1.66	1.74	1.04	2.18	1.68	1.21	1.36	1.76	2.09	1.51	1.56
1998	1.49	1.80	1.57	1.72	1.81	1.04	2.28	1.73	1.25	1.40	1.84	2.18	1.55	1.60
1999	1.53	1.88	1.62	1.78	1.88	1.04	2.39	1.79	1.29	1.44	1.92	2.28	1.58	1.65
2000	1.56	1.96	1.67	1.84	1.96	1.03	2.51	1.85	1.34	1.48	2.00	2.38	1.62	1.70

ANNUAL RATES OF GROWTH

1981-1985	1.71%	.25%	.25%	1.23%	-.25%	1.23%	1.47%	-1.02%	-6.33%	-2.06%	-1.02%	2.41%	.99%	2.41%
1985-1990	2.49%	5.02%	3.85%	4.68%	5.92%	.00%	6.47%	5.92%	4.07%	4.01%	6.09%	6.82%	4.56%	3.24%
1990-1995	2.66%	4.27%	3.23%	3.40%	3.92%	-.19%	6.43%	4.17%	3.57%	2.87%	4.53%	4.54%	2.21%	2.79%
1995-2000	2.48%	4.27%	3.15%	3.36%	4.14%	-.19%	4.86%	3.34%	3.65%	2.79%	4.43%	4.50%	2.24%	2.81%
1981-2000	2.37%	3.61%	2.74%	3.26%	3.61%	.16%	4.96%	3.29%	1.55%	2.08%	3.72%	4.67%	2.57%	2.83%

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SO. DAK. (REGION=North Central)

WAGE INDEXES BY 2-DIGIT SIC

YEAR	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1981	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1982	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
1983	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
1984	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
1985	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08
1986	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
1987	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13
1988	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15
1989	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17
1990	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
1991	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22
1992	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24
1993	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27
1994	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29
1995	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32
1996	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35
1997	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37
1998	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40
1999	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43
2000	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46

ANNUAL RATES OF GROWTH

	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1981-1985	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1985-1990	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1990-1995	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1995-2000	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1981-2000	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%

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TENN.     (REGION=South Atlantic       )

                                                       DEMOGRAPHIC DATA
                                                       ----------------

                                                                               --RATIO OF TOTAL COMMERCIAL ACTIVITY--
                            HOUSE-   PERSONAL                            URBAN  ------------------------------------  NON-MFG/
    YEAR     PEOPLE         HOLDS      INCOME  INCOME/HH       APTS      RATIO    MINING  AGRICULT     TRANSP CONSTRUCT  TOT EARN
 --------   --------     --------    --------   --------   --------   --------  --------  --------   --------  --------  --------
                                  ($000,000) ($1981/HH) ---------------------------(RATIOS)-----------------------------------
     1981    4649306      1659582       38957      23474      .1150     1.0000     .0066     .0304      .0064     .0075     .6753
     1982    4708353      1702235       38373      22543      .1167     1.0000     .0065     .0292      .0062     .0071     .6762
     1983    4768149      1745981       39524      22637      .1184     1.0000     .0063     .0280      .0060     .0068     .6771
     1984    4828705      1790853       41263      23041      .1201     1.0000     .0062     .0269      .0058     .0064     .6780
     1985    4890030      1836870       42913      23362      .1220     1.0000     .0061     .0259      .0056     .0061     .6789
     1986    4957512      1878200       44330      23602      .1237     1.0000     .0059     .0248      .0054     .0057     .6798
     1987    5025925      1920460       45792      23844      .1255     1.0000     .0058     .0239      .0052     .0054     .6807
     1988    5095282      1963679       47304      24089      .1273     1.0000     .0057     .0229      .0050     .0050     .6815
     1989    5165596      2007861       48865      24337      .1293     1.0000     .0055     .0220      .0048     .0047     .6824
     1990    5236881      2053038       50477      24587      .1311     1.0000     .0054     .0212      .0046     .0044     .6833
     1991    5291868      2088966       51890      24840      .1329     1.0000     .0053     .0204      .0044     .0041     .6842
     1992    5347432      2125523       53343      25097      .1349     1.0000     .0052     .0197      .0042     .0038     .6851
     1993    5403580      2162720       54837      25356      .1367     1.0000     .0051     .0190      .0040     .0035     .6860
     1994    5460317      2200568       56372      25617      .1387     1.0000     .0050     .0183      .0038     .0032     .6869
     1995    5517650      2239078       57951      25882      .1406     1.0000     .0049     .0176      .0036     .0029     .6878
     1996    5575585      2278261       59574      26149      .1427     1.0000     .0048     .0170      .0034     .0026     .6887
     1997    5634128      2318130       61242      26419      .1447     1.0000     .0047     .0164      .0032     .0023     .6896
     1998    5693286      2358698       62956      26691      .1467     1.0000     .0047     .0158      .0030     .0020     .6905
     1999    5753065      2399974       64719      26967      .1488     1.0000     .0046     .0152      .0028     .0017     .6915
     2000    5813472      2441974       66531      27245      .1509     1.0000     .0045     .0146      .0026     .0015     .6924


ANNUAL RATES OF GROWTH
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1981-1985        1.27%        2.57%       2.45%      -.12%      1.49%       .00%    -1.95%    -3.93%      -.23%     -.40%      .13%
1985-1990        1.38%        2.25%       3.30%      1.03%      1.45%       .00%    -2.41%    -3.93%      -.23%     -.40%      .13%
1990-1995        1.05%        1.75%       2.80%      1.03%      1.41%       .00%    -1.92%    -3.65%      -.24%     -.36%      .13%
1995-2000        1.05%        1.75%       2.80%      1.03%      1.42%       .00%    -1.69%    -3.67%      -.24%     -.34%      .13%

1981-2000        1.18%        2.05%       2.86%       .79%      1.44%       .00%    -2.00%    -3.79%      -.24%     -.37%      .13%
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#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

TENN. (REGION=South Atlantic)

ENERGY PRICES

	GAS			ELECTRIC			PETROLEUM				
YEAR	RESIDENT	COMMERC	INDUSTR	RESIDENT	COMMERC	INDUSTR	RESIDENT	COMMERC	INDUSTR	COAL	LPG
	($1981/MMBTU)			($1981/KWH)	(INDEX)		($1981/GAL)	(INDEX)		(INDEX)	($1981/GAL)
1981	3.44	3.49	2.59	.0524	.0517	.0368	1.2050	100.00	100.00	100.00	.4000
1982	4.00	4.05	3.55	.0598	.0590	.0420	1.1027	91.51	91.51	103.00	.5050
1983	4.13	4.18	3.68	.0593	.0585	.0416	.9820	81.49	81.49	106.09	.5312
1984	4.07	4.12	3.62	.0625	.0617	.0439	.9530	79.15	79.15	109.27	.5588
1985	3.91	3.96	3.46	.0633	.0625	.0445	.9376	77.81	77.81	112.55	.5879
1986	3.92	3.97	3.47	.0652	.0643	.0458	.9442	78.36	78.36	115.93	.6185
1987	4.15	4.20	3.70	.0637	.0628	.0447	.9508	78.91	78.91	119.41	.6506
1988	4.56	4.61	4.11	.0668	.0659	.0469	.9575	79.46	79.46	122.99	.6845
1989	5.01	5.06	4.56	.0681	.0672	.0479	.9642	80.01	80.01	126.68	.7201
1990	5.34	5.39	4.89	.0701	.0691	.0492	.9709	80.58	80.58	130.48	.7575
1991	5.50	5.55	5.05	.0697	.0687	.0489	.9826	81.54	81.54	134.39	.7969
1992	5.49	5.54	5.04	.0736	.0726	.0517	.9944	82.52	82.52	138.42	.8383
1993	5.44	5.49	4.99	.0684	.0675	.0480	1.0063	83.51	83.51	142.58	.8819
1994	5.52	5.57	5.07	.0749	.0739	.0526	1.0184	84.51	84.51	146.85	.9278
1995	5.66	5.71	5.21	.0678	.0669	.0477	1.0306	85.53	85.53	151.26	.9760
1996	5.89	5.94	5.44	.0740	.0730	.0520	1.0512	87.24	87.24	155.80	1.0268
1997	6.12	6.17	5.67	.0688	.0679	.0484	1.0722	88.98	88.98	160.47	1.0802
1998	6.35	6.40	5.90	.0745	.0735	.0524	1.0937	90.76	90.76	165.28	1.1363
1999	6.62	6.67	6.17	.0691	.0681	.0485	1.1156	92.58	92.58	170.24	1.1954
2000	6.91	6.96	6.46	.0735	.0725	.0517	1.1379	94.43	94.43	175.35	1.2576

ANNUAL RATES OF GROWTH

1981-1985	3.25%	3.21%	3.72%	4.84%	4.83%	4.83%	-6.08%	-6.08%	-6.08%	3.00%	5.20%
1985-1990	6.43%	6.36%	7.16%	2.05%	2.05%	2.05%	.70%	.70%	.70%	3.00%	5.20%
1990-1995	1.17%	1.16%	1.28%	-.65%	-.65%	-.65%	1.20%	1.20%	1.20%	3.00%	5.20%
1995-2000	4.07%	4.04%	4.39%	1.62%	1.63%	1.62%	2.00%	2.00%	2.00%	3.00%	5.20%
1981-2000	3.74%	3.70%	4.14%	1.80%	1.80%	1.80%	-.30%	-.30%	-.30%	3.00%	5.20%

#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

TENN. (REGION=South Atlantic)

VALUE ADDED INDEXES BY 2-DIGIT SIC

YEAR	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1981	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1982	.99	.89	.91	.93	.88	1.01	.90	.85	.65	.82	.81	.95	.95	.92
1983	1.01	.93	.94	.97	.92	1.02	.95	.88	.69	.85	.86	1.00	.98	.98
1984	1.04	.97	.97	1.01	.95	1.04	1.00	.92	.73	.89	.91	1.05	1.01	1.04
1985	1.07	1.01	1.01	1.05	.99	1.05	1.06	.96	.77	.92	.96	1.10	1.04	1.10
1986	1.10	1.06	1.05	1.10	1.05	1.05	1.13	1.01	.81	.96	1.02	1.18	1.09	1.14
1987	1.12	1.11	1.09	1.15	1.11	1.05	1.20	1.07	.84	1.00	1.08	1.26	1.14	1.17
1988	1.15	1.17	1.13	1.20	1.18	1.05	1.28	1.14	.87	1.04	1.15	1.34	1.19	1.21
1989	1.18	1.23	1.17	1.26	1.25	1.05	1.36	1.21	.91	1.08	1.22	1.43	1.24	1.25
1990	1.21	1.29	1.22	1.32	1.32	1.05	1.45	1.28	.94	1.12	1.29	1.53	1.30	1.29
1991	1.24	1.34	1.26	1.36	1.38	1.05	1.54	1.33	.98	1.15	1.35	1.60	1.33	1.33
1992	1.27	1.40	1.30	1.41	1.43	1.05	1.64	1.39	1.01	1.19	1.41	1.67	1.36	1.36
1993	1.31	1.46	1.34	1.46	1.49	1.05	1.75	1.45	1.05	1.22	1.47	1.75	1.39	1.40
1994	1.34	1.52	1.38	1.50	1.54	1.05	1.86	1.51	1.09	1.25	1.54	1.83	1.42	1.44
1995	1.38	1.59	1.43	1.56	1.60	1.04	1.98	1.57	1.12	1.29	1.61	1.91	1.45	1.48
1996	1.41	1.66	1.47	1.61	1.67	1.04	2.08	1.62	1.16	1.32	1.68	2.00	1.48	1.52
1997	1.45	1.73	1.52	1.66	1.74	1.04	2.18	1.68	1.21	1.36	1.76	2.09	1.51	1.56
1998	1.49	1.80	1.57	1.72	1.81	1.04	2.28	1.73	1.25	1.40	1.84	2.18	1.55	1.60
1999	1.53	1.88	1.62	1.78	1.88	1.04	2.39	1.79	1.29	1.44	1.92	2.28	1.58	1.65
2000	1.56	1.96	1.67	1.84	1.96	1.03	2.51	1.85	1.34	1.48	2.00	2.38	1.62	1.70

ANNUAL RATES OF GROWTH

1981-1985	1.71%	.25%	.25%	1.23%	-.25%	1.23%	1.47%	-1.02%	-6.33%	-2.06%	-1.02%	2.41%	.99%	2.41%
1985-1990	2.49%	5.02%	3.85%	4.68%	5.92%	.00%	6.47%	5.92%	4.07%	4.01%	6.09%	6.82%	4.56%	3.24%
1990-1995	2.66%	4.27%	3.23%	3.40%	3.92%	-.19%	6.43%	4.17%	3.57%	2.87%	4.53%	4.54%	2.21%	2.79%
1995-2000	2.48%	4.27%	3.15%	3.36%	4.14%	-.19%	4.86%	3.34%	3.65%	2.79%	4.43%	4.50%	2.24%	2.81%
1981-2000	2.37%	3.61%	2.74%	3.26%	3.61%	.16%	4.96%	3.29%	1.55%	2.08%	3.72%	4.67%	2.57%	2.83%

#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

TENN. (REGION=South Atlantic)

WAGE INDEXES BY 2-DIGIT SIC

YEAR	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1981	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1982	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
1983	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
1984	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
1985	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08
1986	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
1987	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13
1988	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15
1989	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17
1990	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
1991	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22
1992	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24
1993	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27
1994	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29
1995	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32
1996	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35
1997	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37
1998	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40
1999	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43
2000	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46

ANNUAL RATES OF GROWTH

1981-1985	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1985-1990	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1990-1995	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1995-2000	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1981-2000	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%

#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

TEXAS (REGION=Southwest)

DEMOGRAPHIC DATA

YEAR	PEOPLE	HOUSE-HOLDS	PERSONAL INCOME	INCOME/HH	APTS	URBAN RATIO	--RATIO OF TOTAL COMMERCIAL ACTIVITY-- MINING	AGRICULT	TRANSP	CONSTRUCT	NON-MFG/ TOT EARN
			($000,000)	($1981/HH)	(RATIOS)						
1981	14494062	5085742	158431	31152	.1858	1.0000	.0298	.0415	.0921	.0812	.7909
1982	14765100	5247469	156055	29739	.1885	1.0000	.0289	.0402	.0919	.0809	.7911
1983	15041206	5414339	160736	29687	.1913	1.0000	.0280	.0390	.0917	.0807	.7913
1984	15322474	5586515	167809	30038	.1940	1.0000	.0271	.0378	.0915	.0805	.7916
1985	15609002	5764166	174521	30277	.1969	1.0000	.0262	.0366	.0913	.0803	.7918
1986	15846258	5901930	180280	30546	.1998	1.0000	.0254	.0355	.0911	.0801	.7920
1987	16087120	6042986	186229	30817	.2028	1.0000	.0246	.0344	.0909	.0799	.7923
1988	16331642	6187414	192375	31091	.2058	1.0000	.0238	.0334	.0907	.0797	.7925
1989	16579882	6335293	198723	31368	.2087	1.0000	.0231	.0324	.0905	.0795	.7927
1990	16831896	6486707	205281	31646	.2119	1.0000	.0223	.0314	.0903	.0793	.7930
1991	17043976	6613846	211029	31907	.2150	1.0000	.0215	.0304	.0901	.0791	.7933
1992	17258728	6743477	216938	32170	.2182	1.0000	.0208	.0295	.0899	.0789	.7936
1993	17476188	6875649	223012	32435	.2214	1.0000	.0201	.0286	.0897	.0787	.7939
1994	17696388	7010411	229257	32702	.2248	1.0000	.0194	.0277	.0895	.0785	.7942
1995	17919360	7147814	235676	32972	.2282	1.0000	.0187	.0268	.0893	.0783	.7945
1996	18145144	7287911	242275	33243	.2315	1.0000	.0180	.0260	.0891	.0781	.7948
1997	18373772	7430753	249058	33517	.2350	1.0000	.0174	.0252	.0889	.0779	.7951
1998	18605280	7576395	256032	33793	.2385	1.0000	.0168	.0244	.0887	.0777	.7954
1999	18839704	7724892	263201	34072	.2420	1.0000	.0162	.0237	.0885	.0775	.7957
2000	19077084	7876299	270571	34353	.2456	1.0000	.0157	.0229	.0883	.0773	.7960

ANNUAL RATES OF GROWTH

1981-1985	1.87%	3.18%	2.45%	-.71%	1.46%	.00%	-3.17%	-3.09%	-.22%	-.28%	.03%
1985-1990	1.52%	2.39%	3.30%	.89%	1.48%	.00%	-3.17%	-3.02%	-.22%	-.25%	.03%
1990-1995	1.26%	1.96%	2.80%	.82%	1.49%	.00%	-3.46%	-3.12%	-.22%	-.25%	.04%
1995-2000	1.26%	1.96%	2.80%	.82%	1.48%	.00%	-3.44%	-3.10%	-.22%	-.26%	.04%
1981-2000	1.46%	2.33%	2.86%	.52%	1.48%	.00%	-3.32%	-3.08%	-.22%	-.26%	.03%

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#37 -- ADDABBO - HEINZ SCENARIO                                                              FRI, MAY 13, 1983,  3:37 PM

TEXAS     (REGION=Southwest             )

                                                  ENERGY PRICES
                                                  -------------

                         GAS                             ELECTRIC                          PETROLEUM
              ------------------------------  ------------------------------  ------------------------------
    YEAR   RESIDENT    COMMERC    INDUSTR   RESIDENT    COMMERC    INDUSTR   RESIDENT    COMMERC    INDUSTR      COAL       LPG
  -------- --------   --------   --------   --------   --------   --------   --------   --------   --------   --------  --------
           -------( $1981/MMBTU)-------($1981/KWH) ----( INDEX)------($1981/GAL) -----( INDEX)-----  ( INDEX)($1981/GAL)

    1981      4.03       3.60       3.27      .0594      .0552      .0394     1.2050     100.00     100.00     100.00     .4800
    1982      4.59       4.16       3.83      .0684      .0635      .0454     1.1027      91.51      91.51     103.00     .5050
    1983      4.72       4.29       3.96      .0716      .0665      .0475      .9820      81.49      81.49     106.09     .5312
    1984      4.66       4.23       3.90      .0760      .0706      .0504      .9538      79.15      79.15     109.27     .5588
    1985      4.50       4.07       3.74      .0799      .0742      .0530      .9376      77.81      77.81     112.55     .5879
    1986      4.51       4.08       3.75      .0827      .0768      .0548      .9442      78.36      78.36     115.93     .6185
    1987      4.74       4.31       3.98      .0831      .0772      .0551      .9508      78.91      78.91     119.41     .6506
    1988      5.15       4.72       4.39      .0841      .0781      .0558      .9575      79.46      79.46     122.99     .6845
    1989      5.60       5.17       4.84      .0855      .0794      .0567      .9642      80.01      80.01     126.68     .7201
    1990      5.93       5.50       5.17      .0861      .0800      .0571      .9709      80.58      80.58     130.48     .7575
    1991      6.09       5.66       5.33      .0875      .0813      .0580      .9826      81.54      81.54     134.39     .7969
    1992      6.08       5.65       5.32      .0894      .0830      .0593      .9944      82.52      82.52     138.42     .8383
    1993      6.03       5.60       5.27      .0811      .0753      .0538     1.0063      83.51      83.51     142.58     .8819
    1994      6.11       5.68       5.35      .0899      .0835      .0596     1.0184      84.51      84.51     146.85     .9278
    1995      6.25       5.82       5.49      .0806      .0749      .0535     1.0306      85.53      85.53     151.26     .9760
    1996      6.48       6.05       5.72      .0884      .0821      .0587     1.0512      87.24      87.24     155.80    1.0268
    1997      6.71       6.28       5.95      .0806      .0748      .0534     1.0722      88.98      88.98     160.47    1.0802
    1998      6.94       6.51       6.18      .0884      .0821      .0586     1.0937      90.76      90.76     165.28    1.1363
    1999      7.21       6.78       6.45      .0810      .0752      .0537     1.1156      92.58      92.58     170.24    1.1954
    2000      7.58       7.07       6.74      .0871      .0809      .0577     1.1379      94.43      94.43     175.35    1.2576


ANNUAL RATES OF GROWTH
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1981-1985     2.80%      3.12%      3.41%      7.60%      7.60%      7.60%     -6.00%     -6.00%     -6.00%      3.00%     5.20%
1985-1990     5.67%      6.21%      6.69%      1.51%      1.51%      1.51%       .70%       .70%       .70%      3.00%     5.20%
1990-1995     1.06%      1.14%      1.21%     -1.31%     -1.31%     -1.31%      1.20%      1.20%      1.20%      3.00%     5.20%
1995-2000     3.71%      3.97%      4.19%      1.55%      1.55%      1.56%      2.00%      2.00%      2.00%      3.00%     5.20%

1981-2000     3.32%      3.62%      3.88%      2.03%      2.03%      2.03%      -.30%      -.30%      -.30%      3.00%     5.20%
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#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

TEXAS (REGION=Southwest)

VALUE ADDED INDEXES BY 2-DIGIT SIC

YEAR	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1981	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1982	.99	.89	.91	.93	.88	1.01	.98	.85	.65	.82	.81	.95	.95	.92
1983	1.01	.93	.94	.97	.92	1.02	.95	.88	.69	.85	.86	1.00	.98	.98
1984	1.04	.97	.97	1.01	.95	1.04	1.00	.92	.73	.89	.91	1.05	1.01	1.04
1985	1.07	1.01	1.01	1.05	.99	1.05	1.06	.96	.77	.92	.96	1.10	1.04	1.10
1986	1.10	1.06	1.05	1.10	1.05	1.05	1.13	1.01	.81	.96	1.02	1.18	1.09	1.14
1987	1.12	1.11	1.09	1.15	1.11	1.05	1.20	1.07	.84	1.00	1.08	1.26	1.14	1.17
1988	1.15	1.17	1.13	1.20	1.18	1.05	1.28	1.14	.87	1.04	1.15	1.34	1.19	1.21
1989	1.18	1.23	1.17	1.26	1.25	1.05	1.36	1.21	.91	1.08	1.22	1.43	1.24	1.25
1990	1.21	1.29	1.22	1.32	1.32	1.05	1.45	1.28	.94	1.12	1.29	1.53	1.30	1.29
1991	1.24	1.34	1.26	1.36	1.38	1.05	1.54	1.33	.98	1.15	1.35	1.60	1.33	1.33
1992	1.27	1.40	1.30	1.41	1.43	1.05	1.64	1.39	1.01	1.19	1.41	1.67	1.36	1.36
1993	1.31	1.46	1.34	1.46	1.49	1.05	1.75	1.45	1.05	1.22	1.47	1.75	1.39	1.40
1994	1.34	1.52	1.38	1.50	1.54	1.05	1.86	1.51	1.09	1.25	1.54	1.83	1.42	1.44
1995	1.38	1.59	1.43	1.56	1.60	1.04	1.98	1.57	1.12	1.29	1.61	1.91	1.45	1.48
1996	1.41	1.66	1.47	1.61	1.67	1.04	2.08	1.62	1.16	1.32	1.68	2.00	1.48	1.52
1997	1.45	1.73	1.52	1.66	1.74	1.04	2.18	1.68	1.21	1.36	1.76	2.09	1.51	1.56
1998	1.49	1.80	1.57	1.72	1.81	1.04	2.28	1.73	1.25	1.40	1.84	2.18	1.55	1.60
1999	1.53	1.88	1.62	1.78	1.88	1.04	2.39	1.79	1.29	1.44	1.92	2.28	1.58	1.65
2000	1.56	1.96	1.67	1.84	1.96	1.03	2.51	1.85	1.34	1.48	2.00	2.38	1.62	1.70

ANNUAL RATES OF GROWTH

1981-1985	1.71%	.25%	.25%	1.23%	-.25%	1.23%	1.47%	-1.02%	-6.33%	-2.06%	-1.02%	2.41%	.99%	2.41%
1985-1990	2.49%	5.02%	3.85%	4.68%	5.92%	.00%	6.47%	5.92%	4.07%	4.01%	6.09%	6.82%	4.56%	3.24%
1990-1995	2.66%	4.27%	3.23%	3.40%	3.92%	-.19%	6.43%	4.17%	3.57%	2.87%	4.53%	4.54%	2.21%	2.79%
1995-2000	2.48%	4.27%	3.15%	3.36%	4.14%	-.19%	4.86%	3.34%	3.65%	2.79%	4.43%	4.50%	2.24%	2.81%
1981-2000	2.37%	3.61%	2.74%	3.26%	3.61%	.16%	4.96%	3.29%	1.55%	2.08%	3.72%	4.67%	2.57%	2.83%

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037 -- ADDABBO - HEINZ SCENARIO                                                              FRI, MAY 13, 1983,  3:37 PM

TEXAS    (REGION=Southwest            )

                                              WAGE INDEXES BY 2-DIGIT SIC
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                                                                                 PRIMARY  FABRIC.           ELECTRIC
YEAR     FOOD  TEXTILE   LUMBER    PAPER CHEMICAL   PETROL   RUBBER    STONE    METAL    METAL  MACHINE  MACHINE   TRANSP    OTHER
----  -------  -------  -------  -------  -------  -------  -------  -------  -------  -------  -------  -------  -------  -------
1981     1.00     1.00     1.00     1.00     1.00     1.00     1.00     1.00     1.00     1.00     1.00     1.00     1.00     1.00
1982     1.02     1.02     1.02     1.02     1.02     1.02     1.02     1.02     1.02     1.02     1.02     1.02     1.02     1.02
1983     1.04     1.04     1.04     1.04     1.04     1.04     1.04     1.04     1.04     1.04     1.04     1.04     1.04     1.04
1984     1.06     1.06     1.06     1.06     1.06     1.06     1.06     1.06     1.06     1.06     1.06     1.06     1.06     1.06
1985     1.08     1.08     1.08     1.08     1.08     1.08     1.08     1.08     1.08     1.08     1.08     1.08     1.08     1.08
1986     1.10     1.10     1.10     1.10     1.10     1.10     1.10     1.10     1.10     1.10     1.10     1.10     1.10     1.10
1987     1.13     1.13     1.13     1.13     1.13     1.13     1.13     1.13     1.13     1.13     1.13     1.13     1.13     1.13
1988     1.15     1.15     1.15     1.15     1.15     1.15     1.15     1.15     1.15     1.15     1.15     1.15     1.15     1.15
1989     1.17     1.17     1.17     1.17     1.17     1.17     1.17     1.17     1.17     1.17     1.17     1.17     1.17     1.17
1990     1.20     1.20     1.20     1.20     1.20     1.20     1.20     1.20     1.20     1.20     1.20     1.20     1.20     1.20
1991     1.22     1.22     1.22     1.22     1.22     1.22     1.22     1.22     1.22     1.22     1.22     1.22     1.22     1.22
1992     1.24     1.24     1.24     1.24     1.24     1.24     1.24     1.24     1.24     1.24     1.24     1.24     1.24     1.24
1993     1.27     1.27     1.27     1.27     1.27     1.27     1.27     1.27     1.27     1.27     1.27     1.27     1.27     1.27
1994     1.29     1.29     1.29     1.29     1.29     1.29     1.29     1.29     1.29     1.29     1.29     1.29     1.29     1.29
1995     1.32     1.32     1.32     1.32     1.32     1.32     1.32     1.32     1.32     1.32     1.32     1.32     1.32     1.32
1996     1.35     1.35     1.35     1.35     1.35     1.35     1.35     1.35     1.35     1.35     1.35     1.35     1.35     1.35
1997     1.37     1.37     1.37     1.37     1.37     1.37     1.37     1.37     1.37     1.37     1.37     1.37     1.37     1.37
1998     1.40     1.40     1.40     1.40     1.40     1.40     1.40     1.40     1.40     1.40     1.40     1.40     1.40     1.40
1999     1.43     1.43     1.43     1.43     1.43     1.43     1.43     1.43     1.43     1.43     1.43     1.43     1.43     1.43
2000     1.46     1.46     1.46     1.46     1.46     1.46     1.46     1.46     1.46     1.46     1.46     1.46     1.46     1.46


ANNUAL RATES OF GROWTH
----------------------

1981-1985 2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%
1985-1990 2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%
1990-1995 2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%
1995-2000 2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%

1981-2000 2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%
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037 -- ADDABBO - HEINZ SCENARIO                                                              FRI, MAY 13, 1983;  3:37 PM

UTAH     (REGION=North Central        )

                                                          DEMOGRAPHIC DATA
                                                          ----------------

                                                                             --RATIO OF TOTAL COMMERCIAL ACTIVITY--
                           HOUSE-   PERSONAL                         URBAN   --------------------------------------  NON-MFG/
     YEAR     PEOPLE       HOLDS     INCOME  INCOME/HH      APTS     RATIO    MINING  AGRICULT    TRANSP CONSTRUCT   TOT EARN
  --- ----   --------   --------   --------   --------   --------  --------  --------  --------  --------  --------  --------
                                 ($000,000) ($1981/HH) ---------------------------(RATIOS)-----------------------------------
     1981    1497817     466197      12619      27068      .1168    1.0000     .0309     .0247     .0909     .0710     .0469
     1982    1535562     484052      12430      25678      .1186    1.0000     .0380     .0240     .0905     .0706     .0478
     1983    1574258     502592      12803      25473      .1204    1.0000     .0371     .0233     .0900     .0702     .0487
     1984    1613930     521841      13366      25613      .1221    1.0000     .0362     .0226     .0895     .0699     .0495
     1985    1654600     541828      13901      25655      .1239    1.0000     .0353     .0220     .0890     .0695     .0504
     1986    1678096     554235      14359      25908      .1257    1.0000     .0344     .0213     .0885     .0692     .0512
     1987    1701925     566927      14833      26164      .1276    1.0000     .0336     .0207     .0880     .0688     .0521
     1988    1726091     579910      15323      26422      .1295    1.0000     .0328     .0201     .0876     .0685     .0529
     1989    1750602     593190      15828      26683      .1313    1.0000     .0320     .0195     .0871     .0682     .0538
     1990    1775461     606774      16351      26947      .1333    1.0000     .0312     .0190     .0866     .0678     .0546
     1991    1799784     619335      16808      27139      .1353    1.0000     .0304     .0185     .0861     .0674     .0554
     1992    1824442     632155      17279      27334      .1374    1.0000     .0297     .0180     .0856     .0670     .0562
     1993    1849437     645240      17763      27529      .1395    1.0000     .0289     .0176     .0851     .0666     .0570
     1994    1874773     659597      18260      27726      .1416    1.0000     .0282     .0171     .0846     .0662     .0578
     1995    1900458     672230      18772      27924      .1436    1.0000     .0275     .0167     .0841     .0658     .0586
     1996    1926494     686145      19297      28124      .1458    1.0000     .0268     .0163     .0837     .0654     .0594
     1997    1952887     700347      19837      28325      .1480    1.0000     .0261     .0158     .0832     .0651     .0602
     1998    1979642     714845      20393      28528      .1502    1.0000     .0255     .0154     .0827     .0647     .0610
     1999    2006763     729642      20964      28732      .1525    1.0000     .0248     .0150     .0822     .0643     .0618
     2000    2034256     744746      21551      28937      .1548    1.0000     .0242     .0147     .0818     .0639     .0626


ANNUAL RATES OF GROWTH
----------------------

1981-1985       2.52%      3.83%      2.45%     -1.33%      1.49%      .00%    -2.40%    -2.85%     -.53%     -.53%      .10%
1985-1990       1.42%      2.29%      3.30%       .99%      1.47%      .00%    -2.44%    -2.89%     -.55%     -.49%      .10%
1990-1995       1.37%      2.07%      2.80%       .72%      1.50%      .00%    -2.49%    -2.55%     -.58%     -.60%      .09%
1995-2000       1.37%      2.07%      2.80%       .72%      1.51%      .00%    -2.52%    -2.52%     -.55%     -.58%      .09%

1981-2000       1.62%      2.50%      2.86%       .35%      1.49%      .00%    -2.47%    -2.69%     -.55%     -.55%      .10%
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#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

UTAH (REGION=North Central)

ENERGY PRICES

	GAS			ELECTRIC			PETROLEUM				
YEAR	RESIDENT	COMMERC	INDUSTR	RESIDENT	COMMERC	INDUSTR	RESIDENT	COMMERC	INDUSTR	COAL	LPG
	($1981/MMBTU)			($1981/KWH)	(INDEX)		($1981/GAL)	(INDEX)		(INDEX)	($1981/GAL)
1981	3.11	2.61	2.61	.0602	.0554	.0306	1.2050	100.00	100.00	100.00	.4800
1982	3.67	3.17	3.17	.0691	.0635	.0351	1.1027	91.51	91.51	103.00	.5050
1983	3.80	3.30	3.30	.0685	.0629	.0348	.9820	81.49	81.49	106.09	.5312
1984	3.74	3.24	3.24	.0722	.0664	.0367	.9538	79.15	79.15	109.27	.5588
1985	3.58	3.08	3.08	.0782	.0719	.0398	.9376	77.81	77.81	112.55	.5879
1986	3.59	3.09	3.09	.0853	.0784	.0434	.9442	78.36	78.36	115.93	.6185
1987	3.82	3.32	3.32	.0840	.0772	.0427	.9508	78.91	78.91	119.41	.6506
1988	4.23	3.73	3.73	.0880	.0809	.0447	.9575	79.46	79.46	122.99	.6845
1989	4.68	4.18	4.18	.0858	.0789	.0436	.9642	80.01	80.01	126.68	.7201
1990	5.01	4.51	4.51	.0897	.0825	.0456	.9709	80.58	80.58	130.48	.7575
1991	5.17	4.67	4.67	.0886	.0814	.0450	.9826	81.54	81.54	134.39	.7969
1992	5.16	4.66	4.66	.0889	.0818	.0452	.9944	82.52	82.52	138.42	.8383
1993	5.11	4.61	4.61	.0884	.0812	.0449	1.0063	83.51	83.51	142.58	.8819
1994	5.19	4.69	4.69	.0877	.0807	.0446	1.0184	84.51	84.51	146.85	.9278
1995	5.33	4.83	4.83	.0852	.0783	.0433	1.0306	85.53	85.53	151.26	.9760
1996	5.56	5.06	5.06	.0844	.0775	.0429	1.0512	87.24	87.24	155.80	1.0268
1997	5.79	5.29	5.29	.0835	.0767	.0424	1.0722	88.98	88.98	160.47	1.0802
1998	6.02	5.52	5.52	.0827	.0760	.0420	1.0937	90.76	90.76	165.28	1.1363
1999	6.29	5.79	5.79	.0814	.0748	.0414	1.1156	92.58	92.58	170.24	1.1954
2000	6.58	6.08	6.08	.0799	.0734	.0406	1.1379	94.43	94.43	175.35	1.2576

ANNUAL RATES OF GROWTH

1981-1985	3.58%	4.23%	4.23%	6.73%	6.73%	6.73%	-6.08%	-6.08%	-6.08%	3.00%	5.20%
1985-1990	6.95%	7.93%	7.93%	2.70%	2.70%	2.70%	.70%	.70%	.70%	3.00%	5.20%
1990-1995	1.25%	1.38%	1.38%	-1.03%	-1.03%	-1.03%	1.20%	1.20%	1.20%	3.00%	5.20%
1995-2000	4.30%	4.71%	4.71%	-1.27%	-1.27%	-1.27%	2.00%	2.00%	2.00%	3.00%	5.20%
1981-2000	4.02%	4.55%	4.55%	1.50%	1.50%	1.50%	-.30%	-.30%	-.30%	3.00%	5.20%

#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

UTAH (REGION=North Central)

VALUE ADDED INDEXES BY 2-DIGIT SIC

YEAR	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1981	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1982	.99	.89	.91	.93	.88	1.01	.90	.85	.65	.82	.81	.95	.95	.92
1983	1.01	.93	.94	.97	.92	1.02	.95	.88	.69	.85	.86	1.00	.98	.98
1984	1.04	.97	.97	1.01	.95	1.04	1.00	.92	.73	.89	.91	1.05	1.01	1.04
1985	1.07	1.01	1.01	1.05	.99	1.05	1.06	.96	.77	.92	.96	1.10	1.04	1.10
1986	1.10	1.06	1.05	1.10	1.05	1.05	1.13	1.01	.81	.96	1.02	1.18	1.09	1.14
1987	1.12	1.11	1.09	1.15	1.11	1.05	1.20	1.07	.84	1.00	1.08	1.26	1.14	1.17
1988	1.15	1.17	1.13	1.20	1.18	1.05	1.28	1.14	.87	1.04	1.15	1.34	1.19	1.21
1989	1.18	1.23	1.17	1.26	1.25	1.05	1.36	1.21	.91	1.08	1.22	1.43	1.24	1.25
1990	1.21	1.29	1.22	1.32	1.32	1.05	1.45	1.28	.94	1.12	1.29	1.53	1.30	1.29
1991	1.24	1.34	1.26	1.36	1.38	1.05	1.54	1.33	.98	1.15	1.35	1.60	1.33	1.33
1992	1.27	1.40	1.30	1.41	1.43	1.05	1.64	1.39	1.01	1.19	1.41	1.67	1.36	1.36
1993	1.31	1.46	1.34	1.46	1.49	1.05	1.75	1.45	1.05	1.22	1.47	1.75	1.39	1.40
1994	1.34	1.52	1.38	1.50	1.54	1.05	1.86	1.51	1.09	1.25	1.54	1.83	1.42	1.44
1995	1.38	1.59	1.43	1.56	1.60	1.04	1.98	1.57	1.12	1.29	1.61	1.91	1.45	1.48
1996	1.41	1.66	1.47	1.61	1.67	1.04	2.08	1.62	1.16	1.32	1.68	2.00	1.48	1.52
1997	1.45	1.73	1.52	1.66	1.74	1.04	2.18	1.68	1.21	1.36	1.76	2.09	1.51	1.56
1998	1.49	1.80	1.57	1.72	1.81	1.04	2.28	1.73	1.25	1.40	1.84	2.18	1.55	1.60
1999	1.53	1.88	1.62	1.78	1.88	1.04	2.39	1.79	1.29	1.44	1.92	2.28	1.58	1.65
2000	1.56	1.96	1.67	1.84	1.96	1.03	2.51	1.85	1.34	1.48	2.00	2.38	1.62	1.70

ANNUAL RATES OF GROWTH

1981-1985	1.71%	.25%	.25%	1.23%	-.25%	1.23%	1.47%	-1.02%	-6.33%	-2.06%	-1.02%	2.41%	.99%	2.41%
1985-1990	2.49%	5.02%	3.85%	4.68%	5.92%	.00%	6.47%	5.92%	4.07%	4.01%	6.09%	6.02%	4.56%	3.24%
1990-1995	2.66%	4.27%	3.23%	3.40%	3.92%	-.19%	6.43%	4.17%	3.57%	2.87%	4.53%	4.54%	2.21%	2.79%
1995-2000	2.48%	4.27%	3.15%	3.36%	4.14%	-.19%	4.86%	3.34%	3.65%	2.79%	4.43%	4.50%	2.24%	2.81%
1981-2000	2.37%	3.61%	2.74%	3.26%	3.61%	.16%	4.96%	3.29%	1.55%	2.08%	3.72%	4.67%	2.57%	2.83%

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#37 -- ADDABBO - HEINZ SCENARIO                                                              FRI, MAY 13, 1983,  3:37 PM

UTAH      (REGION=North Central        )

                                            WAGE INDEXES BY 2-DIGIT SIC
                                            ---------------------------

                                                                                  PRIMARY  FABRIC.            ELECTRIC
 YEAR      FOOD  TEXTILE   LUMBER     PAPER CHEMICAL    PETROL   RUBBER     STONE   METAL    METAL  MACHINE  MACHINE    TRANSP     OTHER
 ----   -------  -------  -------   -------  -------   -------  -------   -------  -------  -------  -------  -------   -------   -------
 1981      1.00     1.00     1.00      1.00     1.00      1.00     1.00      1.00     1.00     1.00     1.00     1.00      1.00      1.00
 1982      1.02     1.02     1.02      1.02     1.02      1.02     1.02      1.02     1.02     1.02     1.02     1.02      1.02      1.02
 1983      1.04     1.04     1.04      1.04     1.04      1.04     1.04      1.04     1.04     1.04     1.04     1.04      1.04      1.04
 1984      1.06     1.06     1.06      1.06     1.06      1.06     1.06      1.06     1.06     1.06     1.06     1.06      1.06      1.06
 1985      1.08     1.08     1.08      1.08     1.08      1.08     1.08      1.08     1.08     1.08     1.08     1.08      1.08      1.08
 1986      1.10     1.10     1.10      1.10     1.10      1.10     1.10      1.10     1.10     1.10     1.10     1.10      1.10      1.10
 1987      1.13     1.13     1.13      1.13     1.13      1.13     1.13      1.13     1.13     1.13     1.13     1.13      1.13      1.13
 1988      1.15     1.15     1.15      1.15     1.15      1.15     1.15      1.15     1.15     1.15     1.15     1.15      1.15      1.15
 1989      1.17     1.17     1.17      1.17     1.17      1.17     1.17      1.17     1.17     1.17     1.17     1.17      1.17      1.17
 1990      1.20     1.20     1.20      1.20     1.20      1.20     1.20      1.20     1.20     1.20     1.20     1.20      1.20      1.20
 1991      1.22     1.22     1.22      1.22     1.22      1.22     1.22      1.22     1.22     1.22     1.22     1.22      1.22      1.22
 1992      1.24     1.24     1.24      1.24     1.24      1.24     1.24      1.24     1.24     1.24     1.24     1.24      1.24      1.24
 1993      1.27     1.27     1.27      1.27     1.27      1.27     1.27      1.27     1.27     1.27     1.27     1.27      1.27      1.27
 1994      1.29     1.29     1.29      1.29     1.29      1.29     1.29      1.29     1.29     1.29     1.29     1.29      1.29      1.29
 1995      1.32     1.32     1.32      1.32     1.32      1.32     1.32      1.32     1.32     1.32     1.32     1.32      1.32      1.32
 1996      1.35     1.35     1.35      1.35     1.35      1.35     1.35      1.35     1.35     1.35     1.35     1.35      1.35      1.35
 1997      1.37     1.37     1.37      1.37     1.37      1.37     1.37      1.37     1.37     1.37     1.37     1.37      1.37      1.37
 1998      1.40     1.40     1.40      1.40     1.40      1.40     1.40      1.40     1.40     1.40     1.40     1.40      1.40      1.40
 1999      1.43     1.43     1.43      1.43     1.43      1.43     1.43      1.43     1.43     1.43     1.43     1.43      1.43      1.43
 2000      1.46     1.46     1.46      1.46     1.46      1.46     1.46      1.46     1.46     1.46     1.46     1.46      1.46      1.46


ANNUAL RATES OF GROWTH
----------------------

1981-1985 2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%
1985-1990 2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%
1990-1995 2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%
1995-2000 2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%

1981-2000 2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%
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#37 -- ADDABBO - HEINZ SCENARIO                                                              FRI, MAY 13, 1983,  3:37 PM

VERMONT  (REGION=New England         )

                                                      DEMOGRAPHIC DATA
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                                                                                --RATIO OF TOTAL COMMERCIAL ACTIVITY--
                              HOUSE-   PERSONAL                             URBAN   --------------------------------------  NON-MFG/
    YEAR      PEOPLE          HOLDS      INCOME  INCOME/HH        APTS      RATIO     MINING  AGRICULT     TRANSP CONSTRUCT   TOT EARN
  --------   --------      --------   --------   --------     --------   --------   --------  --------   -------- --------   --------
                                     ($000,000) ($1981/HH) --------------------------(RATIOS)------------------------------------------
    1981      517171        182094       4497      24696        .0913     1.0000      .0069     .0474      .0881     .1032      .7426
    1982      522394        186203       4430      23779        .0926     1.0000      .0068     .0461      .0882     .1026      .7436
    1983      527670        190567       4562      23941        .0940     1.0000      .0067     .0448      .0883     .1020      .7446
    1984      533000        194950       4763      24433        .0954     1.0000      .0066     .0436      .0884     .1014      .7456
    1985      538303        199434       4954      24839        .0968     1.0000      .0065     .0424      .0885     .1009      .7466
    1986      543874        203204       5117      25182        .0982     1.0000      .0064     .0412      .0885     .1003      .7476
    1987      549422        207044       5286      25531        .0997     1.0000      .0063     .0401      .0886     .0997      .7486
    1988      555026        210957       5460      25884        .1011     1.0000      .0061     .0390      .0887     .0992      .7496
    1989      560687        214944       5641      26243        .1026     1.0000      .0060     .0379      .0888     .0986      .7505
    1990      566407        219007       5827      26606        .1042     1.0000      .0059     .0368      .0889     .0981      .7515
    1991      570824        222248       5990      26952        .1058     1.0000      .0058     .0357      .0890     .0976      .7525
    1992      575277        225537       6158      27302        .1075     1.0000      .0057     .0347      .0891     .0971      .7535
    1993      579764        228875       6330      27657        .1090     1.0000      .0056     .0337      .0892     .0966      .7545
    1994      584287        232262       6507      28017        .1107     1.0000      .0055     .0327      .0893     .0961      .7555
    1995      588844        235700       6690      28382        .1124     1.0000      .0054     .0318      .0894     .0956      .7565
    1996      593437        239188       6877      28751        .1141     1.0000      .0053     .0308      .0895     .0952      .7575
    1997      598066        242729       7069      29125        .1158     1.0000      .0052     .0299      .0896     .0947      .7585
    1998      602731        246321       7267      29504        .1175     1.0000      .0052     .0291      .0897     .0942      .7595
    1999      607433        249966       7471      29887        .1194     1.0000      .0051     .0282      .0898     .0937      .7606
    2000      612171        253666       7680      30276        .1212     1.0000      .0050     .0274      .0899     .0932      .7616


ANNUAL RATES OF GROWTH
----------------------

1981-1985        1.01%        2.30%      2.45%       .14%        1.47%       .00%     -1.40%    -2.75%       .11%     -.56%       .13%
1985-1990        1.02%        1.89%      3.30%      1.38%        1.48%       .00%     -1.92%    -2.79%       .09%     -.56%       .13%
1990-1995         .78%        1.48%      2.80%      1.30%        1.53%       .00%     -1.76%    -2.88%       .11%     -.51%       .13%
1995-2000         .78%        1.48%      2.80%      1.30%        1.52%       .00%     -1.53%    -2.93%       .11%     -.51%       .13%

1981-2000         .89%        1.76%      2.86%      1.08%        1.50%       .00%     -1.68%    -2.84%       .11%     -.53%       .13%
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#37 -- ADDABBO - HEINZ SCENARIO                                                                         FRI, MAY 13, 1983,  3:37 PM

VERMONT  (REGION=New England          )

                                                      ENERGY PRICES
                                                      -------------

                         GAS                              ELECTRIC                              PETROLEUM
            ---------------------------    ---------------------------    ---------------------------
    YEAR    RESIDENT    COMMERC   INDUSTR   RESIDENT    COMMERC   INDUSTR   RESIDENT    COMMERC   INDUSTR       COAL        LPG
--------    --------   --------  --------   --------   --------  --------   --------   --------  --------   --------   --------
            -------( $1981/MMBTU)-------($1981/KWH) ----( INDEX)------($1981/GAL) -----( INDEX)-----  ( INDEX)($1981/GAL)

    1981        7.22       6.64      5.63      .0890      .0867     .0705     1.2050     100.00    100.00     100.00      .4800
    1982        7.78       7.20      6.19      .0940      .0916     .0745     1.1027      91.51     91.51     103.00      .5050
    1983        7.91       7.33      6.32      .0950      .0925     .0752      .9820      81.49     81.49     106.09      .5312
    1984        7.85       7.27      6.26      .0973      .0948     .0770      .9538      79.15     79.15     109.27      .5588
    1985        7.69       7.11      6.10      .1038      .1011     .0822      .9376      77.81     77.81     112.55      .5879
    1986        7.70       7.12      6.11      .1025      .0998     .0811      .9442      78.36     78.36     115.93      .6185
    1987        7.93       7.35      6.34      .1118      .1089     .0885      .9508      78.91     78.91     119.41      .6506
    1988        8.34       7.76      6.75      .1077      .1049     .0853      .9575      79.46     79.46     122.99      .6845
    1989        8.79       8.21      7.20      .1048      .1021     .0830      .9642      80.01     80.01     126.68      .7201
    1990        9.12       8.54      7.53      .1041      .1014     .0824      .9709      80.58     80.58     130.48      .7575
    1991        9.28       8.70      7.69      .1049      .1022     .0831      .9826      81.54     81.54     134.39      .7969
    1992        9.27       8.69      7.68      .1027      .1000     .0813      .9944      82.52     82.52     138.42      .8383
    1993        9.22       8.64      7.63      .0997      .0971     .0789     1.0063      83.51     83.51     142.58      .8819
    1994        9.30       8.72      7.71      .0970      .0945     .0768     1.0184      84.51     84.51     146.85      .9278
    1995        9.44       8.86      7.85      .0927      .0903     .0734     1.0306      85.53     85.53     151.26      .9760
    1996        9.67       9.09      8.08      .0907      .0884     .0719     1.0512      87.24     87.24     155.80     1.0268
    1997        9.90       9.32      8.31      .0890      .0867     .0705     1.0722      88.98     88.98     160.47     1.0802
    1998       10.13       9.55      8.54      .0888      .0865     .0703     1.0937      90.76     90.76     165.28     1.1363
    1999       10.40       9.82      8.81      .0870      .0848     .0689     1.1156      92.58     92.58     170.24     1.1954
    2000       10.69      10.11      9.10      .0860      .0837     .0680     1.1379      94.43     94.43     175.35     1.2576


ANNUAL RATES OF GROWTH
----------------------

1981-1985      1.59%      1.72%     2.02%      3.91%      3.91%     3.91%     -6.00%     -6.00%    -6.00%      3.00%      5.20%
1985-1990      3.47%      3.73%     4.30%       .06%       .06%      .06%       .70%       .70%      .70%      3.00%      5.20%
1990-1995       .69%       .74%      .84%     -2.29%     -2.29%    -2.29%      1.20%      1.20%     1.20%      3.00%      5.20%
1995-2000      2.52%      2.67%     3.00%     -1.50%     -1.50%    -1.50%      2.00%      2.00%     2.00%      3.00%      5.20%

1981-2000      2.09%      2.24%     2.56%      -.10%      -.10%     -.10%      -.30%      -.30%     -.30%      3.00%      5.20%
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037 -- ADDABBO - HEINZ SCENARIO                                                        FRI, MAY 13, 1983,   3:37 PM

VERMONT  (REGION=New England          )

                                          VALUE ADDED INDEXES BY 2-DIGIT SIC
                                          ----------------------------------

                                                                                   PRIMARY  FABRIC.           ELECTRIC
YEAR       FOOD  TEXTILE   LUMBER     PAPER CHEMICAL   PETROL   RUBBER    STONE    METAL    METAL  MACHINE  MACHINE   TRANSP    OTHER
----    -------  -------  -------   ------- -------   -------  -------  -------  -------  -------  -------  -------  -------  -------
1981       1.00     1.00     1.00      1.00    1.00      1.00     1.00     1.00     1.00     1.00     1.00     1.00     1.00     1.00
1982        .99      .89      .91       .93     .88      1.01      .90      .85      .65      .82      .81      .95      .95      .92
1983       1.01      .93      .94       .97     .92      1.02      .95      .88      .69      .85      .86     1.00      .90      .98
1984       1.04      .97      .97      1.01     .95      1.04     1.00      .92      .73      .89      .91     1.05     1.01     1.04
1985       1.07     1.01     1.01      1.05     .99      1.05     1.06      .96      .77      .92      .96     1.10     1.04     1.10
1986       1.10     1.06     1.05      1.10    1.05      1.05     1.13     1.01      .81      .96     1.02     1.18     1.09     1.14
1987       1.12     1.11     1.09      1.15    1.11      1.05     1.20     1.07      .84     1.00     1.08     1.26     1.14     1.17
1988       1.15     1.17     1.13      1.20    1.18      1.05     1.28     1.14      .87     1.04     1.15     1.34     1.19     1.21
1989       1.18     1.23     1.17      1.26    1.25      1.05     1.36     1.21      .91     1.08     1.22     1.43     1.24     1.25
1990       1.21     1.29     1.22      1.32    1.32      1.05     1.45     1.28      .94     1.12     1.29     1.53     1.30     1.29
1991       1.24     1.34     1.26      1.36    1.38      1.05     1.54     1.33      .98     1.15     1.35     1.60     1.33     1.33
1992       1.27     1.40     1.30      1.41    1.43      1.05     1.64     1.39     1.01     1.19     1.41     1.67     1.36     1.36
1993       1.31     1.46     1.34      1.46    1.49      1.05     1.75     1.45     1.05     1.22     1.47     1.75     1.39     1.40
1994       1.34     1.52     1.38      1.50    1.54      1.05     1.86     1.51     1.09     1.25     1.54     1.83     1.42     1.44
1995       1.38     1.59     1.43      1.56    1.60      1.04     1.98     1.57     1.12     1.29     1.61     1.91     1.45     1.48
1996       1.41     1.66     1.47      1.61    1.67      1.04     2.08     1.62     1.16     1.32     1.68     2.00     1.48     1.52
1997       1.45     1.73     1.52      1.66    1.74      1.04     2.18     1.68     1.21     1.36     1.76     2.09     1.51     1.56
1998       1.49     1.80     1.57      1.72    1.81      1.04     2.28     1.73     1.25     1.40     1.84     2.18     1.55     1.60
1999       1.53     1.88     1.62      1.78    1.88      1.04     2.39     1.79     1.29     1.44     1.92     2.28     1.58     1.65
2000       1.56     1.96     1.67      1.84    1.96      1.03     2.51     1.85     1.34     1.48     2.00     2.38     1.62     1.70


ANNUAL RATES OF GROWTH
----------------------

1981-1985 1.71%     .25%     .25%     1.23%    -.25%     1.23%    1.47%   -1.02%   -6.33%   -2.06%   -1.02%    2.41%     .99%    2.41%
1985-1990 2.49%    5.02%    3.85%     4.68%    5.92%      .00%    6.47%    5.92%    4.07%    4.01%    6.09%    6.82%    4.56%    3.24%
1990-1995 2.66%    4.27%    3.23%     3.40%    3.92%     -.19%    6.43%    4.17%    3.57%    2.87%    4.53%    4.54%    2.21%    2.79%
1995-2000 2.48%    4.27%    3.15%     3.36%    4.14%     -.19%    4.86%    3.34%    3.65%    2.79%    4.43%    4.50%    2.24%    2.81%

1981-2000 2.37%    3.61%    2.74%     3.26%    3.61%      .16%    4.96%    3.29%    1.55%    2.08%    3.72%    4.67%    2.57%    2.83%
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#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

VERMONT (REGION=New England)

WAGE INDEXES BY 2-DIGIT SIC

YEAR	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1981	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1982	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
1983	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
1984	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
1985	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08
1986	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
1987	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13
1988	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15
1989	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17
1990	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
1991	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22
1992	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24
1993	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27
1994	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29
1995	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32
1996	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35
1997	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37
1998	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40
1999	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43
2000	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46

ANNUAL RATES OF GROWTH

1981-1985	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1985-1990	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1990-1995	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1995-2000	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1981-2000	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%

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#37 -- ADDABBO - HEINZ SCENARIO                                                                      FRI, MAY 13, 1983,  3:37 PM

VIRGINIA (REGION=Middle Atlantic      )

                                                     DEMOGRAPHIC DATA
                                                     ----------------

                                                                              --RATIO OF TOTAL COMMERCIAL ACTIVITY--
                                HOUSE-   PERSONAL                                 URBAN    ---------------------------------------  NON-MFG/
    YEAR      PEOPLE       HOLDS       INCOME  INCOME/HH        APTS      RATIO     MINING  AGRICULT     TRANSP  CONSTRUCT  TOT EARN
  --------  --------  --------    --------  --------    --------   --------   --------  --------   --------   --------   --------
                                  ($000,000) ($1981/HH) --------------------------(RATIOS)------------------------------------
    1981   5405975   1908086      56191      29449       .1489     1.0000     .0122     .0178      .0819      .0820      .7934
    1982   5466421   1954260      55348      28322       .1511     1.0000     .0120     .0172      .0817      .0818      .7939
    1983   5527645   2001554      57009      28482       .1533     1.0000     .0118     .0166      .0816      .0816      .7944
    1984   5589554   2049991      59517      29033       .1555     1.0000     .0116     .0160      .0814      .0814      .7949
    1985   5652157   2099601      61898      29481       .1579     1.0000     .0114     .0154      .0812      .0812      .7953
    1986   5719417   2142853      63940      29839       .1601     1.0000     .0113     .0149      .0810      .0810      .7958
    1987   5787478   2186996      66050      30201       .1625     1.0000     .0111     .0144      .0809      .0808      .7963
    1988   5856349   2232049      68230      30560       .1649     1.0000     .0109     .0139      .0807      .0806      .7968
    1989   5926039   2278029      70482      30940       .1673     1.0000     .0107     .0134      .0805      .0804      .7973
    1990   5996559   2324957      72807      31316       .1698     1.0000     .0106     .0129      .0803      .0802      .7978
    1991   6050528   2362156      74846      31685       .1723     1.0000     .0105     .0124      .0801      .0800      .7983
    1992   6104983   2399951      76942      32060       .1749     1.0000     .0104     .0120      .0799      .0798      .7988
    1993   6159928   2438349      79096      32438       .1775     1.0000     .0103     .0115      .0797      .0796      .7993
    1994   6215368   2477363      81311      32822       .1802     1.0000     .0102     .0111      .0795      .0794      .7998
    1995   6271307   2517001      83588      33209       .1828     1.0000     .0101     .0107      .0793      .0792      .8003
    1996   6327749   2557273      85928      33601       .1855     1.0000     .0100     .0103      .0791      .0790      .8008
    1997   6384699   2598190      88334      33998       .1884     1.0000     .0099     .0099      .0789      .0788      .8013
    1998   6442162   2639761      90807      34400       .1912     1.0000     .0098     .0095      .0787      .0786      .8018
    1999   6500142   2681997      93350      34806       .1940     1.0000     .0097     .0092      .0785      .0784      .8023
    2000   6558644   2724909      95964      35217       .1969     1.0000     .0096     .0088      .0783      .0782      .8028


ANNUAL RATES OF GROWTH
----------------------

1981-1985       1.12%      2.42%      2.45%        .03%      1.48%       .00%    -1.68%    -3.56%      -.21%      -.24%       .06%
1985-1990       1.19%      2.06%      3.30%       1.21%      1.46%       .00%    -1.44%    -3.48%      -.22%      -.25%       .06%
1990-1995        .90%      1.60%      2.80%       1.18%      1.49%       .00%     -.96%    -3.67%      -.25%      -.25%       .06%
1995-2000        .90%      1.60%      2.80%       1.18%      1.50%       .00%    -1.01%    -3.83%      -.25%      -.25%       .06%

1981-2000       1.02%      1.89%      2.86%        .95%      1.48%       .00%    -1.25%    -3.64%      -.24%      -.25%       .06%
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#37 -- ADDABBO - HEINZ SCENARIO                                                              FRI, MAY 13, 1983,  3:37 PM

VIRGINIA (REGION=Middle Atlantic      )

                                              ENERGY PRICES
                                              -------------

                       GAS                            ELECTRIC                         PETROLEUM
           ----------------------------  ----------------------------  ----------------------------
    YEAR  RESIDENT   COMMERC   INDUSTR  RESIDENT   COMMERC   INDUSTR  RESIDENT   COMMERC   INDUSTR      COAL       LPG
  --------  --------  --------  --------  --------  --------  --------  --------  --------  --------  --------  --------
           -------( $1981/MMBTU)-------($1981/KWH) ----( INDEX)------($1981/GAL) -----( INDEX)-----  ( INDEX)($1981/GAL)

    1981      4.74      4.20      3.44     .0642     .0616     .0451    1.2050    100.00    100.00    100.00     .4800
    1982      5.30      4.76      4.00     .0669     .0642     .0470    1.1027     91.51     91.51    103.00     .5050
    1983      5.43      4.89      4.13     .0665     .0638     .0466     .9820     81.49     81.49    106.09     .5312
    1984      5.37      4.83      4.07     .0684     .0657     .0480     .9538     79.15     79.15    109.27     .5588
    1985      5.21      4.67      3.91     .0712     .0683     .0500     .9376     77.81     77.81    112.55     .5879
    1986      5.22      4.68      3.92     .0734     .0705     .0515     .9442     78.36     78.36    115.93     .6185
    1987      5.45      4.91      4.15     .0747     .0717     .0524     .9508     78.91     78.91    119.41     .6506
    1988      5.86      5.32      4.56     .0737     .0708     .0517     .9575     79.46     79.46    122.99     .6845
    1989      6.31      5.77      5.01     .0733     .0703     .0514     .9642     80.01     80.01    126.68     .7201
    1990      6.64      6.10      5.34     .0732     .0703     .0514     .9709     80.58     80.58    130.48     .7575
    1991      6.80      6.26      5.50     .0741     .0711     .0520     .9826     81.54     81.54    134.39     .7969
    1992      6.79      6.25      5.49     .0747     .0717     .0524     .9944     82.52     82.52    138.42     .8383
    1993      6.74      6.20      5.44     .0741     .0712     .0520    1.0063     83.51     83.51    142.58     .8819
    1994      6.82      6.28      5.52     .0737     .0707     .0517    1.0184     84.51     84.51    146.85     .9278
    1995      6.96      6.42      5.66     .0711     .0682     .0499    1.0306     85.53     85.53    151.26     .9760
    1996      7.19      6.65      5.89     .0710     .0681     .0498    1.0512     87.24     87.24    155.80    1.0268
    1997      7.42      6.88      6.12     .0708     .0680     .0497    1.0722     88.98     88.98    160.47    1.0802
    1998      7.65      7.11      6.35     .0706     .0678     .0496    1.0937     90.76     90.76    165.28    1.1363
    1999      7.92      7.38      6.62     .0701     .0673     .0492    1.1156     92.58     92.58    170.24    1.1954
    2000      8.21      7.67      6.91     .0694     .0666     .0487    1.1379     94.43     94.43    175.35    1.2576


ANNUAL RATES OF GROWTH
---------------------

1981-1985     2.39%     2.69%     3.25%     2.62%     2.62%     2.62%    -6.08%    -6.08%    -6.08%     3.00%     5.20%
1985-1990     4.97%     5.49%     6.43%      .57%      .56%      .56%      .70%      .70%      .70%     3.00%     5.20%
1990-1995      .95%     1.03%     1.17%     -.59%     -.59%     -.59%     1.20%     1.20%     1.20%     3.00%     5.20%
1995-2000     3.36%     3.62%     4.07%     -.48%     -.48%     -.48%     2.00%     2.00%     2.00%     3.00%     5.20%

1981-2000     2.93%     3.22%     3.74%      .41%      .41%      .41%     -.30%     -.30%     -.30%     3.00%     5.20%
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#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

VIRGINIA (REGION=Middle Atlantic)

VALUE ADDED INDEXES BY 2-DIGIT SIC

YEAR	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1981	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1982	.99	.89	.91	.93	.88	1.01	.90	.85	.65	.82	.81	.95	.95	.92
1983	1.01	.93	.94	.97	.92	1.02	.95	.88	.69	.85	.86	1.00	.98	.98
1984	1.04	.97	.97	1.01	.95	1.04	1.00	.92	.73	.89	.91	1.05	1.01	1.04
1985	1.07	1.01	1.01	1.05	.99	1.05	1.06	.96	.77	.92	.96	1.10	1.04	1.10
1986	1.10	1.06	1.05	1.10	1.05	1.05	1.13	1.01	.81	.96	1.02	1.18	1.09	1.14
1987	1.12	1.11	1.09	1.15	1.11	1.05	1.20	1.07	.84	1.00	1.08	1.26	1.14	1.17
1988	1.15	1.17	1.13	1.20	1.18	1.05	1.28	1.14	.87	1.04	1.15	1.34	1.19	1.21
1989	1.18	1.23	1.17	1.26	1.25	1.05	1.36	1.21	.91	1.08	1.22	1.43	1.24	1.25
1990	1.21	1.29	1.22	1.32	1.32	1.05	1.45	1.28	.94	1.12	1.29	1.53	1.30	1.29
1991	1.24	1.34	1.26	1.36	1.38	1.05	1.54	1.33	.98	1.15	1.35	1.60	1.33	1.33
1992	1.27	1.40	1.30	1.41	1.43	1.05	1.64	1.39	1.01	1.19	1.41	1.67	1.36	1.36
1993	1.31	1.46	1.34	1.46	1.49	1.05	1.75	1.45	1.05	1.22	1.47	1.75	1.39	1.40
1994	1.34	1.52	1.38	1.50	1.54	1.05	1.86	1.51	1.09	1.25	1.54	1.83	1.42	1.44
1995	1.38	1.59	1.43	1.56	1.60	1.04	1.98	1.57	1.12	1.29	1.61	1.91	1.45	1.48
1996	1.41	1.66	1.47	1.61	1.67	1.04	2.08	1.62	1.16	1.32	1.68	2.00	1.48	1.52
1997	1.45	1.73	1.52	1.66	1.74	1.04	2.18	1.68	1.21	1.36	1.76	2.09	1.51	1.56
1998	1.49	1.80	1.57	1.72	1.81	1.04	2.28	1.73	1.25	1.40	1.84	2.18	1.55	1.60
1999	1.53	1.88	1.62	1.78	1.88	1.04	2.39	1.79	1.29	1.44	1.92	2.28	1.58	1.65
2000	1.56	1.96	1.67	1.84	1.96	1.03	2.51	1.85	1.34	1.48	2.00	2.38	1.62	1.70

ANNUAL RATES OF GROWTH

1981-1985	1.71%	.25%	.25%	1.23%	-.25%	1.23%	1.47%	-1.02%	-6.33%	-2.06%	-1.02%	2.41%	.99%	2.41%
1985-1990	2.49%	5.02%	3.85%	4.68%	5.92%	.00%	6.47%	5.92%	4.07%	4.01%	6.09%	6.82%	4.56%	3.24%
1990-1995	2.66%	4.27%	3.23%	3.40%	3.92%	-.19%	6.43%	4.17%	3.57%	2.87%	4.53%	4.54%	2.21%	2.79%
1995-2000	2.48%	4.27%	3.15%	3.36%	4.14%	-.19%	4.86%	3.34%	3.65%	2.79%	4.43%	4.58%	2.24%	2.81%
1981-2000	2.37%	3.61%	2.74%	3.26%	3.61%	.16%	4.96%	3.29%	1.55%	2.08%	3.72%	4.67%	2.57%	2.83%

037 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

VIRGINIA (REGION=Middle Atlantic)

WAGE INDEXES BY 2-DIGIT SIC

YEAR	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1981	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1982	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
1983	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
1984	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
1985	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08
1986	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
1987	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13
1988	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15
1989	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17
1990	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
1991	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22
1992	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24
1993	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27
1994	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29
1995	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32
1996	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35
1997	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37
1998	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40
1999	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43
2000	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46

ANNUAL RATES OF GROWTH

1981-1985	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1985-1990	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1990-1995	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1995-2000	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1981-2000	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%

#37 -- ADDABBO - HEINZ SCENARIO   FRI, MAY 13, 1983, 3:37 PM

WASH.   (REGION=Northwest   )

DEMOGRAPHIC DATA

YEAR	PEOPLE	HOUSE-HOLDS	PERSONAL INCOME	INCOME/HH	APTS	URBAN RATIO	--RATIO OF TOTAL COMMERCIAL ACTIVITY-- MINING	AGRICULT	TRANSP	CONSTRUCT	NON-MFG/ TOT EARN
			($000,000)	($1981/HH)	(RATIOS)						
1981	4205992	1588356	47557	29941	.1775	1.0000	.0021	.0366	.0878	.0821	.7900
1982	4283302	1638230	46844	28594	.1800	1.0000	.0020	.0356	.0876	.0818	.7911
1983	4362196	1689671	48249	28555	.1828	1.0000	.0020	.0347	.0874	.0814	.7921
1984	4442461	1742726	50372	28904	.1854	1.0000	.0019	.0337	.0873	.0811	.7932
1985	4524201	1797440	52387	29145	.1882	1.0000	.0019	.0329	.0871	.0807	.7943
1986	4578492	1834656	54116	29496	.1909	1.0000	.0019	.0320	.0869	.0804	.7953
1987	4633434	1872633	55901	29852	.1938	1.0000	.0018	.0311	.0867	.0801	.7964
1988	4689036	1911396	57746	30211	.1967	1.0000	.0018	.0303	.0865	.0797	.7975
1989	4745305	1950961	59652	30576	.1995	1.0000	.0018	.0295	.0863	.0794	.7985
1990	4802249	1991347	61620	30944	.2025	1.0000	.0017	.0287	.0861	.0791	.7995
1991	4843548	2022412	63346	31322	.2055	1.0000	.0016	.0279	.0859	.0788	.8005
1992	4885202	2053962	65119	31704	.2086	1.0000	.0015	.0272	.0857	.0785	.8015
1993	4927215	2086003	66943	32091	.2117	1.0000	.0014	.0264	.0855	.0782	.8025
1994	4969509	2118546	68817	32483	.2148	1.0000	.0014	.0257	.0853	.0779	.8035
1995	5012327	2151594	70744	32880	.2180	1.0000	.0013	.0250	.0851	.0776	.8045
1996	5055433	2185159	72725	33281	.2213	1.0000	.0012	.0243	.0849	.0773	.8055
1997	5098918	2219248	74761	33688	.2246	1.0000	.0011	.0237	.0847	.0770	.8065
1998	5142761	2253867	76854	34099	.2280	1.0000	.0011	.0230	.0845	.0767	.8075
1999	5186989	2289027	79006	34515	.2314	1.0000	.0010	.0224	.0843	.0765	.8086
2000	5231597	2324736	81219	34937	.2348	1.0000	.0010	.0218	.0841	.0762	.8096

ANNUAL RATES OF GROWTH

1981-1985	1.84%	3.14%	2.45%	-.67%	1.47%	.00%	-2.47%	-2.63%	-.20%	-.43%	.14%
1985-1990	1.20%	2.07%	3.30%	1.21%	1.48%	.00%	-2.28%	-2.69%	-.23%	-.40%	.13%
1990-1995	.86%	1.56%	2.80%	1.22%	1.49%	.00%	-5.22%	-2.72%	-.23%	-.38%	.12%
1995-2000	.86%	1.56%	2.80%	1.22%	1.50%	.00%	-5.11%	-2.70%	-.24%	-.36%	.13%
1981-2000	1.16%	2.03%	2.86%	.82%	1.48%	.00%	-3.83%	-2.69%	-.23%	-.39%	.13%

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837 -- ADDABBO - HEINZ SCENARIO                                                                       FRI, MAY 13, 1983,  3:37 PM

WASH.    (REGION=Northwest            )

                                                  ENERGY PRICES
                                                  -------------

                       GAS                                ELECTRIC                               PETROLEUM
           ----------------------------   ----------------------------   ----------------------------
    YEAR   RESIDENT   COMMERC   INDUSTR   RESIDENT   COMMERC   INDUSTR   RESIDENT   COMMERC   INDUSTR       COAL        LPG
--------   --------   --------  --------  --------   --------  --------  --------   --------  --------   --------   --------
           -------( $1981/MMBTU)-------($1981/KWH) ----( INDEX)------($1981/GAL) -----( INDEX)-----   ( INDEX)($1981/GAL)

    1981      5.43      4.84      4.31     .0263      .0272     .0134    1.2050     100.00    100.00     100.00      .4800
    1982      5.99      5.40      4.87     .0276      .0286     .0140    1.1027      91.51     91.51     103.00      .5050
    1983      6.12      5.53      5.00     .0266      .0275     .0135     .9820      81.49     81.49     106.09      .5312
    1984      6.06      5.47      4.94     .0280      .0290     .0142     .9538      79.15     79.15     109.27      .5588
    1985      5.90      5.31      4.78     .0288      .0298     .0146     .9376      77.81     77.81     112.55      .5879
    1986      5.91      5.32      4.79     .0289      .0299     .0147     .9442      78.36     78.36     115.93      .6185
    1987      6.14      5.55      5.02     .0290      .0308     .0147     .9508      78.91     78.91     119.41      .6506
    1988      6.55      5.96      5.43     .0310      .0329     .0162     .9575      79.46     79.46     122.99      .6845
    1989      7.00      6.41      5.80     .0328      .0331     .0162     .9642      80.01     80.01     126.68      .7201
    1990      7.33      6.74      6.21     .0318      .0329     .0162     .9709      80.58     80.58     130.48      .7575
    1991      7.49      6.90      6.37     .0320      .0340     .0167     .9826      81.54     81.54     134.39      .7969
    1992      7.40      6.89      6.36     .0356      .0360     .0181     .9944      82.52     82.52     138.42      .8383
    1993      7.43      6.84      6.31     .0381      .0394     .0193    1.0063      83.51     83.51     142.58      .8819
    1994      7.51      6.92      6.39     .0403      .0417     .0205    1.0184      84.51     84.51     146.85      .9278
    1995      7.65      7.06      6.53     .0420      .0434     .0214    1.0306      85.53     85.53     151.26      .9760
    1996      7.88      7.29      6.76     .0434      .0449     .0221    1.0512      87.24     87.24     155.80     1.0268
    1997      8.11      7.52      6.99     .0447      .0462     .0227    1.0722      88.98     88.98     160.47     1.0802
    1998      8.34      7.75      7.22     .0457      .0473     .0232    1.0937      90.76     90.76     165.28     1.1363
    1999      8.61      8.02      7.49     .0453      .0460     .0230    1.1156      92.58     92.58     170.24     1.1954
    2000      8.90      8.31      7.78     .0447      .0462     .0227    1.1379      94.43     94.43     175.35     1.2576


ANNUAL RATES OF GROWTH
----------------------

1981-1985     2.10%     2.34%     2.62%     2.31%     2.30%     2.30%    -6.08%    -6.08%    -6.08%     3.00%     5.20%
1985-1990     4.44%     4.88%     5.37%     2.08%     2.01%     2.01%      .70%      .70%      .70%     3.00%     5.20%
1990-1995      .86%      .93%     1.01%     5.74%     5.74%     5.74%     1.20%     1.20%     1.20%     3.00%     5.20%
1995-2000     3.07%     3.31%     3.57%     1.26%     1.26%     1.26%     2.00%     2.00%     2.00%     3.00%     5.20%

1981-2000     2.63%     2.89%     3.16%     2.84%     2.84%     2.84%     -.30%     -.30%     -.30%     3.00%     5.20%
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037 -- ADDABBO - HEINZ SCENARIO　　FRI, MAY 13, 1983,　3:37 PM

WASH.　　(REGION=Northwest　　　　　)

VALUE ADDED INDEXES BY 2-DIGIT SIC

YEAR	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1981	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1982	.99	.89	.91	.93	.88	1.01	.90	.85	.65	.82	.81	.95	.95	.92
1983	1.01	.93	.94	.97	.92	1.02	.95	.88	.69	.85	.86	1.00	.98	.98
1984	1.04	.97	.97	1.01	.95	1.04	1.00	.92	.73	.89	.91	1.05	1.01	1.04
1985	1.07	1.01	1.01	1.05	.99	1.05	1.06	.96	.77	.92	.96	1.10	1.04	1.10
1986	1.10	1.06	1.05	1.10	1.05	1.05	1.13	1.01	.81	.96	1.02	1.18	1.09	1.14
1987	1.12	1.11	1.09	1.15	1.11	1.05	1.20	1.07	.84	1.00	1.08	1.26	1.14	1.17
1988	1.15	1.17	1.13	1.20	1.18	1.05	1.28	1.14	.87	1.04	1.15	1.34	1.19	1.21
1989	1.18	1.23	1.17	1.26	1.25	1.05	1.36	1.21	.91	1.08	1.22	1.43	1.24	1.25
1990	1.21	1.29	1.22	1.32	1.32	1.05	1.45	1.28	.94	1.12	1.29	1.53	1.30	1.29
1991	1.24	1.34	1.26	1.36	1.38	1.05	1.54	1.33	.98	1.15	1.35	1.60	1.33	1.33
1992	1.27	1.40	1.30	1.41	1.43	1.05	1.64	1.39	1.01	1.19	1.41	1.67	1.36	1.36
1993	1.31	1.46	1.34	1.46	1.49	1.05	1.75	1.45	1.05	1.22	1.47	1.75	1.39	1.40
1994	1.34	1.52	1.38	1.50	1.54	1.05	1.86	1.51	1.09	1.25	1.54	1.83	1.42	1.44
1995	1.38	1.59	1.43	1.56	1.60	1.04	1.98	1.57	1.12	1.29	1.61	1.91	1.45	1.48
1996	1.41	1.66	1.47	1.61	1.67	1.04	2.08	1.62	1.16	1.32	1.68	2.00	1.48	1.52
1997	1.45	1.73	1.52	1.66	1.74	1.04	2.18	1.68	1.21	1.36	1.76	2.09	1.51	1.56
1998	1.49	1.80	1.57	1.72	1.81	1.04	2.28	1.73	1.25	1.40	1.84	2.18	1.55	1.60
1999	1.53	1.88	1.62	1.78	1.88	1.04	2.39	1.79	1.29	1.44	1.92	2.28	1.58	1.65
2000	1.56	1.96	1.67	1.84	1.96	1.03	2.51	1.85	1.34	1.48	2.00	2.38	1.62	1.70

ANNUAL RATES OF GROWTH

1981-1985	1.71%	.25%	.25%	1.23%	-.25%	1.23%	1.47%	-1.02%	-6.33%	-2.06%	-1.02%	2.41%	.99%	2.41%
1985-1990	2.49%	5.02%	3.85%	4.68%	5.92%	.00%	6.47%	5.92%	4.07%	4.01%	6.09%	6.82%	4.56%	3.24%
1990-1995	2.66%	4.27%	3.23%	3.40%	3.92%	-.19%	6.43%	4.17%	3.57%	2.87%	4.53%	4.54%	2.21%	2.79%
1995-2000	2.48%	4.27%	3.15%	3.36%	4.14%	-.19%	4.86%	3.34%	3.65%	2.79%	4.43%	4.50%	2.24%	2.81%
1981-2000	2.37%	3.61%	2.74%	3.26%	3.61%	.16%	4.96%	3.29%	1.55%	2.08%	3.72%	4.67%	2.57%	2.83%

037 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

WASH. <REGION=Northwest >

WAGE INDEXES BY 2-DIGIT SIC

YEAR	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1981	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1982	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
1983	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
1984	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
1985	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08
1986	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
1987	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13
1988	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15
1989	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17
1990	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
1991	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22
1992	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24
1993	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27
1994	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29
1995	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32
1996	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35
1997	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37
1998	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40
1999	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43
2000	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46

ANNUAL RATES OF GROWTH

1981-1985	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1985-1990	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1990-1995	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1995-2000	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1981-2000	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%

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#37 -- ADDABBO - HEINZ SCENARIO                                                                                FRI, MAY 13, 1983,  3:37 PM

WEST VA. (REGION=Middle Atlantic      )

                                                            DEMOGRAPHIC DATA
                                                            ----------------

                                                                                --RATIO OF TOTAL COMMERCIAL ACTIVITY--
                        HOUSE-  PERSONAL                                 URBAN  ------------------------------------- NON-MFG/
    YEAR    PEOPLE      HOLDS    INCOME INCOME/HH        APTS     RATIO   MINING  AGRICULT     TRANSP CONSTRUCT TOT EARN
--------  --------   --------  -------- ---------    --------  --------  --------  --------   --------  --------  --------
                             ($000,000) ($1981/HH) ---------------------------(RATIOS)-------------------------------------
    1981   1973596     703218     16352     23253       .0598    1.0000     .1352     .0069      .1165     .1043     .7325
    1982   1997477     720869     16107     22343       .0607    1.0000     .1335     .0067      .1158     .1039     .7332
    1983   2021645     738963     16590     22450     . .0616    1.0000     .1318     .0066      .1151     .1036     .7339
    1984   2046107     757518     17320     22864       .0626    1.0000     .1301     .0064      .1144     .1032     .7346
    1985   2070865     776525     18013     23197       .0635    1.0000     .1284     .0062      .1138     .1029     .7353
    1986   2083083     787784     18607     23620       .0644    1.0000     .1268     .0061      .1131     .1026     .7360
    1987   2095373     799206     19221     24050       .0653    1.0000     .1252     .0059      .1125     .1022     .7367
    1988   2107736     810794     19855     24489       .0663    1.0000     .1236     .0058      .1118     .1019     .7374
    1989   2120171     922552     20511     24935       .0673    1.0000     .1220     .0056      .1112     .1016     .7381
    1990   2132680     834478     21188     25390       .0684    1.0000     .1205     .0055      .1105     .1012     .7388
    1991   2142277     844075     21781     25804       .0694    1.0000     .1190     .0054      .1098     .1008     .7395
    1992   2151917     853782     22391     26225       .0706    1.0000     .1176     .0053      .1091     .1004     .7402
    1993   2161601     863601     23018     26653       .0717    1.0000     .1161     .0052      .1084     .1000     .7409
    1994   2171328     873532     23662     27088       .0728    1.0000     .1147     .0051      .1077     .0996     .7416
    1995   2181099     883578     24325     27530       .0740    1.0000     .1133     .0050      .1071     .0992     .7423
    1996   2190914     893739     25006   . 27979       .0752    1.0000     .1119     .0049      .1064     .0988     .7430
    1997   2200774     904017     25706     28435       .0764    1.0000     .1105     .0048      .1057     .0984     .7437
    1998   2210677     914414     26426     28899       .0776    1.0000     .1091     .0048      .1051     .0981     .7444
    1999   2220625     924929     27166     29370       .0788    1.0000     .1078     .0047      .1044     .0977     .7451
    2000   2230618     935566     27926     29849       .0801    1.0000     .1065     .0046      .1037     .0973     .7458


ANNUAL RATES OF GROWTH
----------------------

1981-1985        1.21%      2.51%      2.45%     -.06%      1.51%       .00%    -1.28%    -2.64%      -.58%     -.34%      .10%
1985-1990         .59%      1.45%      3.30%     1.82%      1.50%       .00%    -1.26%    -2.37%      -.59%     -.33%      .10%
1990-1995         .45%      1.15%      2.80%     1.63%      1.59%       .00%    -1.22%    -1.89%      -.62%     -.40%      .09%
1995-2000         .45%      1.15%      2.80%     1.63%      1.60%       .00%    -1.23%    -1.65%      -.64%     -.39%      .09%

1981-2000         .65%      1.51%      2.86%     1.32%      1.55%       .00%    -1.25%    -2.11%      -.61%     -.36%      .09%
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#37 -- ADDABBO - HEINZ SCENARIO　　　　FRI, MAY 13, 1983, 3:37 PM

WEST VA. (REGION=Middle Atlantic)

ENERGY PRICES

	GAS			ELECTRIC			PETROLEUM				
YEAR	RESIDENT	COMMERC	INDUSTR	RESIDENT	COMMERC	INDUSTR	RESIDENT	COMMERC	INDUSTR	COAL	LPG
	-------($1981/MMBTU)-------			($1981/KWH)	----(INDEX)------		($1981/GAL)	-----(INDEX)-----		(INDEX)	($1981/GAL)
1981	4.12	3.66	3.45	.0642	.0616	.0451	1.2050	100.00	100.00	100.00	.4800
1982	4.68	4.22	4.01	.0669	.0642	.0470	1.1027	91.51	91.51	103.00	.5050
1983	4.81	4.35	4.14	.0665	.0638	.0466	.9820	81.49	81.49	106.09	.5312
1984	4.75	4.29	4.08	.0684	.0657	.0480	.9538	79.15	79.15	109.27	.5588
1985	4.59	4.13	3.92	.0712	.0683	.0500	.9376	77.81	77.81	112.55	.5879
1986	4.60	4.14	3.93	.0734	.0705	.0515	.9442	78.36	78.36	115.93	.6185
1987	4.83	4.37	4.16	.0747	.0717	.0524	.9508	78.91	78.91	119.41	.6506
1988	5.24	4.70	4.57	.0737	.0708	.0517	.9575	79.46	79.46	122.99	.6845
1989	5.69	5.23	5.02	.0733	.0703	.0514	.9642	80.01	80.01	126.68	.7201
1990	6.02	5.56	5.35	.0732	.0703	.0514	.9709	80.58	80.58	130.48	.7575
1991	6.10	5.72	5.51	.0741	.0711	.0520	.9826	81.54	81.54	134.39	.7969
1992	6.17	5.71	5.50	.0747	.0717	.0524	.9944	82.52	82.52	138.42	.8383
1993	6.12	5.66	5.45	.0741	.0712	.0520	1.0063	83.51	83.51	142.58	.8819
1994	6.20	5.74	5.53	.0737	.0707	.0517	1.0184	84.51	84.51	146.85	.9278
1995	6.34	5.88	5.67	.0711	.0682	.0499	1.0306	85.53	85.53	151.26	.9760
1996	6.57	6.11	5.90	.0710	.0681	.0498	1.0512	87.24	87.24	155.80	1.0268
1997	6.80	6.34	6.13	.0708	.0680	.0497	1.0722	88.98	88.98	160.47	1.0802
1998	7.03	6.57	6.36	.0706	.0678	.0496	1.0937	90.76	90.76	165.28	1.1363
1999	7.30	6.84	6.63	.0701	.0673	.0492	1.1156	92.58	92.58	170.24	1.1954
2000	7.59	7.13	6.92	.0694	.0666	.0487	1.1379	94.43	94.43	175.35	1.2576

ANNUAL RATES OF GROWTH

1981-1985	2.74%	3.07%	3.24%	2.62%	2.62%	2.62%	-6.08%	-6.08%	-6.08%	3.00%	5.20%
1985-1990	5.57%	6.13%	6.42%	.57%	.56%	.56%	.70%	.70%	.70%	3.00%	5.20%
1990-1995	1.04%	1.13%	1.17%	-.59%	-.59%	-.59%	1.20%	1.20%	1.20%	3.00%	5.20%
1995-2000	3.66%	3.93%	4.06%	-.48%	-.48%	-.48%	2.00%	2.00%	2.00%	3.00%	5.20%
1981-2000	3.27%	3.57%	3.73%	.41%	.41%	.41%	-.30%	-.30%	-.30%	3.00%	5.20%

#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

WEST VA. (REGION=Middle Atlantic)

VALUE ADDED INDEXES BY 2-DIGIT SIC

YEAR	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1981	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1982	.99	.89	.91	.93	.88	1.01	.90	.85	.65	.82	.81	.95	.95	.92
1983	1.01	.93	.94	.97	.92	1.02	.95	.88	.69	.85	.86	1.00	.98	.98
1984	1.04	.97	.97	1.01	.95	1.04	1.00	.92	.73	.89	.91	1.05	1.01	1.04
1985	1.07	1.01	1.01	1.05	.99	1.05	1.06	.96	.77	.92	.96	1.10	1.04	1.10
1986	1.10	1.06	1.05	1.10	1.05	1.05	1.13	1.01	.81	.96	1.02	1.18	1.09	1.14
1987	1.12	1.11	1.09	1.15	1.11	1.05	1.20	1.07	.84	1.00	1.08	1.26	1.14	1.17
1988	1.15	1.17	1.13	1.20	1.18	1.05	1.28	1.14	.87	1.04	1.15	1.34	1.19	1.21
1989	1.18	1.23	1.17	1.26	1.25	1.05	1.36	1.21	.91	1.08	1.22	1.43	1.24	1.25
1990	1.21	1.29	1.22	1.32	1.32	1.05	1.45	1.28	.94	1.12	1.29	1.53	1.30	1.29
1991	1.24	1.34	1.26	1.36	1.38	1.05	1.54	1.33	.98	1.15	1.35	1.60	1.33	1.33
1992	1.27	1.40	1.30	1.41	1.43	1.05	1.64	1.39	1.01	1.19	1.41	1.67	1.36	1.36
1993	1.31	1.46	1.34	1.46	1.49	1.05	1.75	1.45	1.05	1.22	1.47	1.75	1.39	1.40
1994	1.34	1.52	1.38	1.50	1.54	1.05	1.86	1.51	1.09	1.25	1.54	1.83	1.42	1.44
1995	1.38	1.59	1.43	1.56	1.60	1.04	1.98	1.57	1.12	1.29	1.61	1.91	1.45	1.48
1996	1.41	1.66	1.47	1.61	1.67	1.04	2.08	1.62	1.16	1.32	1.68	2.00	1.48	1.52
1997	1.45	1.73	1.52	1.66	1.74	1.04	2.18	1.68	1.21	1.36	1.76	2.09	1.51	1.56
1998	1.49	1.80	1.57	1.72	1.81	1.04	2.28	1.73	1.25	1.40	1.84	2.18	1.55	1.60
1999	1.53	1.88	1.62	1.78	1.88	1.04	2.39	1.79	1.29	1.44	1.92	2.28	1.58	1.65
2000	1.56	1.96	1.67	1.84	1.96	1.03	2.51	1.85	1.34	1.48	2.00	2.38	1.62	1.70

ANNUAL RATES OF GROWTH

1981-1985	1.71%	.25%	.25%	1.23%	-.25%	1.23%	1.47%	-1.02%	-6.33%	-2.06%	-1.02%	2.41%	.99%	2.41%
1985-1990	2.49%	5.02%	3.85%	4.68%	5.92%	.00%	6.47%	5.92%	4.07%	4.01%	6.09%	6.82%	4.56%	3.24%
1990-1995	2.66%	4.27%	3.23%	3.40%	3.92%	-.19%	6.43%	4.17%	3.57%	2.87%	4.53%	4.54%	2.21%	2.79%
1995-2000	2.48%	4.27%	3.15%	3.36%	4.14%	-.19%	4.86%	3.34%	3.65%	2.79%	4.43%	4.50%	2.24%	2.81%
1981-2000	2.37%	3.61%	2.74%	3.26%	3.61%	.16%	4.96%	3.29%	1.55%	2.08%	3.72%	4.67%	2.57%	2.83%

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#37 -- ADDABBO - HEINZ SCENARIO                                                        FRI, MAY 13, 1983,  3:37 PM

WEST VA. (REGION=Middle Atlantic      )

                                          WAGE INDEXES BY 2-DIGIT SIC
                                          ---------------------------

                                                                                   PRIMARY  FABRIC.           ELECTRIC
 YEAR      FOOD  TEXTILE   LUMBER     PAPER CHEMICAL   PETROL   RUBBER    STONE    METAL    METAL  MACHINE  MACHINE   TRANSP    OTHER
 ----   -------  -------  -------   ------- -------   -------  -------  -------  -------  -------  -------  -------  -------  -------
 1981      1.00     1.00     1.00      1.00    1.00      1.00     1.00     1.00     1.00     1.00     1.00     1.00     1.00     1.00
 1982      1.02     1.02     1.02      1.02    1.02      1.02     1.02     1.02     1.02     1.02     1.02     1.02     1.02     1.02
 1983      1.04     1.04     1.04      1.04    1.04      1.04     1.04     1.04     1.04     1.04     1.04     1.04     1.04     1.04
 1984      1.06     1.06     1.06      1.06    1.06      1.06     1.06     1.06     1.06     1.06     1.06     1.06     1.06     1.06
 1985      1.08     1.08     1.08      1.08    1.08      1.08     1.08     1.08     1.08     1.08     1.08     1.08     1.08     1.08
 1986      1.10     1.10     1.10      1.10    1.10      1.10     1.10     1.10     1.10     1.10     1.10     1.10     1.10     1.10
 1987      1.13     1.13     1.13      1.13    1.13      1.13     1.13     1.13     1.13     1.13     1.13     1.13     1.13     1.13
 1988      1.15     1.15     1.15      1.15    1.15      1.15     1.15     1.15     1.15     1.15     1.15     1.15     1.15     1.15
 1989      1.17     1.17     1.17      1.17    1.17      1.17     1.17     1.17     1.17     1.17     1.17     1.17     1.17     1.17
 1990      1.20     1.20     1.20      1.20    1.20      1.20     1.20     1.20     1.20     1.20     1.20     1.20     1.20     1.20
 1991      1.22     1.22     1.22      1.22    1.22      1.22     1.22     1.22     1.22     1.22     1.22     1.22     1.22     1.22
 1992      1.24     1.24     1.24      1.24    1.24      1.24     1.24     1.24     1.24     1.24     1.24     1.24     1.24     1.24
 1993      1.27     1.27     1.27      1.27    1.27      1.27     1.27     1.27     1.27     1.27     1.27     1.27     1.27     1.27
 1994      1.29     1.29     1.29      1.29    1.29      1.29     1.29     1.29     1.29     1.29     1.29     1.29     1.29     1.29
 1995      1.32     1.32     1.32      1.32    1.32      1.32     1.32     1.32     1.32     1.32     1.32     1.32     1.32     1.32
 1996      1.35     1.35     1.35      1.35    1.35      1.35     1.35     1.35     1.35     1.35     1.35     1.35     1.35     1.35
 1997      1.37     1.37     1.37      1.37    1.37      1.37     1.37     1.37     1.37     1.37     1.37     1.37     1.37     1.37
 1998      1.40     1.40     1.40      1.40    1.40      1.40     1.40     1.40     1.40     1.40     1.40     1.40     1.40     1.40
 1999      1.43     1.43     1.43      1.43    1.43      1.43     1.43     1.43     1.43     1.43     1.43     1.43     1.43     1.43
 2000      1.46     1.46     1.46      1.46    1.46      1.46     1.46     1.46     1.46     1.46     1.46     1.46     1.46     1.46


ANNUAL RATES OF GROWTH
----------------------

1981-1985 2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%
1985-1990 2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%
1990-1995 2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%
1995-2000 2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%

1981-2000 2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%    2.00%
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#37 -- ADDABBO - HEINZ SCENARIO                                                    FRI, MAY 13, 1983,  3:37 PM

WISCONS. (REGION=Midwest            )

                                              DEMOGRAPHIC DATA
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                                                                           --RATIO OF TOTAL COMMERCIAL ACTIVITY--
                          HOUSE-  PERSONAL                          URBAN  --------------------------------------  NON-MFG/
    YEAR    PEOPLE       HOLDS    INCOME INCOME/HH       APTS      RATIO    MINING  AGRICULT    TRANSP CONSTRUCT  TOT EARN
 --------  --------   --------  -------- --------   --------   --------  --------  --------  --------  --------  --------
                               ($000,000) ($1981/HH) ----------------------------(RATIOS)------------------------------------
    1981   4740825    1685536     47579    28220      .1144     1.0000     .0022     .0558     .0884     .0882     .6661
    1982   4775907    1719752     46865    27251      .1160     1.0000     .0022     .0544     .0882     .0878     .6681
    1983   4811249    1754663     48271    27510      .1178     1.0000     .0021     .0530     .0879     .0874     .6699
    1984   4846852    1790283     50395    28149      .1196     1.0000     .0021     .0517     .0876     .0870     .6718
    1985   4882719    1826625     52411    28693      .1214     1.0000     .0020     .0503     .0873     .0866     .6737
    1986   4925198    1858226     54141    29136      .1231     1.0000     .0020     .0491     .0871     .0862     .6756
    1987   4968047    1890374     55927    29585      .1249     1.0000     .0020     .0478     .0868     .0858     .6774
    1988   5011268    1923076     57773    30042      .1267     1.0000     .0019     .0466     .0866     .0854     .6792
    1989   5054066    1956346     59679    30505      .1286     1.0000     .0019     .0455     .0863     .0850     .6811
    1990   5098843    1990190     61649    30976      .1303     1.0000     .0018     .0443     .0860     .0847     .6829
    1991   5129436    2016063     63375    31435      .1324     1.0000     .0017     .0431     .0857     .0844     .6847
    1992   5160213    2042271     65149    31900      .1345     1.0000     .0016     .0420     .0854     .0841     .6865
    1993   5191174    2068821     66974    32373      .1364     1.0000     .0015     .0409     .0851     .0838     .6883
    1994   5222321    2095716     68849    32852      .1384     1.0000     .0014     .0398     .0848     .0835     .6901
    1995   5253655    2122960     70777    33339      .1405     1.0000     .0014     .0388     .0845     .0832     .6920
    1996   5285177    2150559     72758    33832      .1426     1.0000     .0013     .0377     .0842     .0829     .6938
    1997   5316888    2178517     74796    34333      .1447     1.0000     .0012     .0367     .0839     .0826     .6956
    1998   5348790    2206837     76890    34842      .1468     1.0000     .0012     .0358     .0836     .0823     .6975
    1999   5380883    2235526     79043    35358      .1490     1.0000     .0011     .0348     .0833     .0820     .6993
    2000   5413169    2264588     81256    35881      .1513     1.0000     .0010     .0339     .0831     .0818     .7012


ANNUAL RATES OF GROWTH
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1981-1985         .74%      2.03%      2.45%       .41%      1.50%       .00%    -2.35%    -2.56%     -.31%     -.46%       .28%
1985-1990         .87%      1.73%      3.30%      1.54%      1.46%       .00%    -2.09%    -2.51%     -.30%     -.44%       .27%
1990-1995         .60%      1.30%      2.80%      1.48%      1.49%       .00%    -4.90%    -2.62%     -.35%     -.36%       .27%
1995-2000         .60%      1.30%      2.80%      1.48%      1.49%       .00%    -6.51%    -2.66%     -.33%     -.34%       .26%

1981-2000         .70%      1.57%      2.86%      1.27%      1.48%       .00%    -4.06%    -2.59%     -.32%     -.40%       .27%
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#37 -- ADDABBO - HEINZ SCENARIO                                                          FRI, MAY 13, 1983,  3:37 PM

WISCONS. (REGION=Midwest            )

                                                  ENERGY PRICES
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                       GAS                             ELECTRIC                          PETROLEUM
          -------------------------------  ------------------------------  ------------------------------
   YEAR   RESIDENT   COMMERC    INDUSTR    RESIDENT   COMMERC    INDUSTR   RESIDENT   COMMERC    INDUSTR        COAL       LPG
--------  --------   --------   --------   --------   --------   --------  --------   --------   --------     --------   --------
          -------( $1981/MMBTU)-------($1981/KWH) ----( INDEX)------($1981/GAL) -----( INDEX)-----      ( INDEX)($1981/GAL)

    1981      4.60       4.16       3.76      .0624      .0610      .0417    1.2050     100.00     100.00       100.00      .4000
    1982      5.24       4.72       4.32      .0671      .0655      .0440    1.1027      91.51      91.51       103.00      .5050
    1983      5.37       4.85       4.45      .0680      .0664      .0454     .9820      81.49      81.49       106.09      .5312
    1984      5.31       4.79       4.39      .0721      .0704      .0482     .9530      79.15      79.15       109.27      .5588
    1985      5.15       4.63       4.23      .0760      .0742      .0508     .9376      77.81      77.81       112.55      .5879
    1986      5.16       4.64       4.24      .0769      .0751      .0514     .9442      78.36      78.36       115.93      .6185
    1987      5.39       4.87       4.47      .0788      .0770      .0527     .9500      78.91      78.91       119.41      .6506
    1988      5.80       5.28       4.88      .0780      .0762      .0521     .9575      79.46      79.46       122.99      .6845
    1989      6.25       5.73       5.33      .0785      .0766      .0524     .9642      80.01      80.01       126.68      .7201
    1990      6.58       6.06       5.66      .0769      .0751      .0514     .9709      80.58      80.58       130.48      .7575
    1991      6.74       6.22       5.82      .0775      .0757      .0510     .9826      81.54      81.54       134.39      .7969
    1992      6.73       6.21       5.81      .0795      .0776      .0531     .9944      82.52      82.52       138.42      .8383
    1993      6.68       6.16       5.76      .0743      .0726      .0497    1.0063      83.51      83.51       142.58      .8819
    1994      6.76       6.24       5.84      .0800      .0781      .0534    1.0184      84.51      84.51       146.85      .9278
    1995      6.90       6.38       5.98      .0724      .0706      .0483    1.0306      85.53      85.53       151.26      .9760
    1996      7.13       6.61       6.21      .0777      .0758      .0519    1.0512      87.24      87.24       155.80     1.0268
    1997      7.36       6.84       6.44      .0727      .0710      .0486    1.0722      88.98      88.98       160.47     1.0802
    1998      7.59       7.07       6.67      .0775      .0757      .0518    1.0937      90.76      90.76       165.28     1.1363
    1999      7.86       7.34       6.94      .0723      .0706      .0483    1.1156      92.58      92.58       170.24     1.1954
    2000      8.15       7.63       7.23      .0761      .0743      .0508    1.1379      94.43      94.43       175.35     1.2576


ANNUAL RATES OF GROWTH
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1981-1985     2.42%      2.71%      2.99%      5.04%      5.04%      5.04%    -6.08%     -6.08%     -6.08%        3.00%      5.20%
1985-1990     5.02%      5.53%      6.00%       .23%       .23%       .23%      .70%       .70%       .70%        3.00%      5.20%
1990-1995      .95%      1.03%      1.11%     -1.20%     -1.21%     -1.20%     1.20%      1.20%      1.20%        3.00%      5.20%
1995-2000     3.39%      3.64%      3.07%      1.00%      1.00%      1.00%     2.00%      2.00%      2.00%        3.00%      5.20%

1981-2000     2.96%      3.24%      3.50%      1.04%      1.04%      1.04%     -.30%      -.30%      -.30%        3.00%      5.20%
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#37 -- ADDABBO - HEINZ SCENARIO                                                       FRI, MAY 13, 1983,  3:37 PM

WISCONS. (REGION=Midwest              )

                                          VALUE ADDED INDEXES BY 2-DIGIT SIC
                                          ----------------------------------

                                                                                  PRIMARY  FABRIC.           ELECTRIC
 YEAR      FOOD  TEXTILE   LUMBER     PAPER CHEMICAL   PETROL   RUBBER    STONE    METAL    METAL  MACHINE  MACHINE   TRANSP    OTHER
 ----   -------  -------  -------   -------  -------  -------  -------  -------  -------  -------  -------  -------  -------  -------
 1981      1.00     1.00     1.00      1.00     1.00     1.00     1.00     1.00     1.00     1.00     1.00     1.00     1.00     1.00
 1982       .99      .89      .91       .93      .88     1.01      .90      .85      .65      .82      .81      .95      .95      .92
 1983      1.01      .93      .94       .97      .92     1.02      .95      .88      .69      .85      .86     1.00      .98      .98
 1984      1.04      .97      .97      1.01      .95     1.04     1.00      .92      .73      .89      .91     1.05     1.01     1.04
 1985      1.07     1.01     1.01      1.05      .99     1.05     1.06      .96      .77      .92      .96     1.10     1.04     1.10
 1986      1.10     1.06     1.05      1.10     1.05     1.05     1.13     1.01      .81      .96     1.02     1.18     1.09     1.14
 1987      1.12     1.11     1.09      1.15     1.11     1.05     1.20     1.07      .84     1.00     1.08     1.26     1.14     1.17
 1988      1.15     1.17     1.13      1.20     1.18     1.05     1.28     1.14      .87     1.04     1.15     1.34     1.19     1.21
 1989      1.18     1.23     1.17      1.26     1.25     1.05     1.36     1.21      .91     1.08     1.22     1.43     1.24     1.25
 1990      1.21     1.29     1.22      1.32     1.32     1.05     1.45     1.28      .94     1.12     1.29     1.53     1.30     1.29
 1991      1.24     1.34     1.26      1.36     1.38     1.05     1.54     1.33      .98     1.15     1.35     1.60     1.33     1.33
 1992      1.27     1.40     1.30      1.41     1.43     1.05     1.64     1.39     1.01     1.19     1.41     1.67     1.36     1.36
 1993      1.31     1.46     1.34      1.46     1.49     1.05     1.75     1.45     1.05     1.22     1.47     1.75     1.39     1.40
 1994      1.34     1.52     1.38      1.50     1.54     1.05     1.86     1.51     1.09     1.25     1.54     1.83     1.42     1.44
 1995      1.38     1.59     1.43      1.56     1.60     1.04     1.98     1.57     1.12     1.29     1.61     1.91     1.45     1.48
 1996      1.41     1.66     1.47      1.61     1.67     1.04     2.08     1.62     1.16     1.32     1.68     2.00     1.48     1.52
 1997      1.45     1.73     1.52      1.66     1.74     1.04     2.18     1.68     1.21     1.36     1.76     2.09     1.51     1.56
 1998      1.49     1.80     1.57      1.72     1.81     1.04     2.28     1.73     1.25     1.40     1.84     2.18     1.55     1.60
 1999      1.53     1.88     1.62      1.78     1.88     1.04     2.39     1.79     1.29     1.44     1.92     2.28     1.58     1.65
 2000      1.56     1.96     1.67      1.84     1.96     1.03     2.51     1.85     1.34     1.48     2.00     2.38     1.62     1.70


ANNUAL RATES OF GROWTH
----------------------

1981-1985 1.71%     .25%     .25%     1.23%    -.25%    1.23%    1.47%   -1.02%   -6.33%   -2.06%   -1.02%    2.41%     .99%    2.41%
1985-1990 2.49%    5.02%    3.85%     4.68%    5.92%     .00%    6.47%    5.92%    4.07%    4.01%    6.09%    6.82%    4.56%    3.24%
1990-1995 2.66%    4.27%    3.23%     3.40%    3.92%    -.19%    6.43%    4.17%    3.57%    2.87%    4.53%    4.54%    2.21%    2.79%
1995-2000 2.48%    4.27%    3.15%     3.36%    4.14%    -.19%    4.86%    3.34%    3.65%    2.79%    4.43%    4.50%    2.24%    2.81%

1981-2000 2.37%    3.61%    2.74%     3.26%    3.61%     .16%    4.96%    3.29%    1.55%    2.08%    3.72%    4.67%    2.57%    2.83%
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#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

WISCONS. (REGION=Midwest)

WAGE INDEXES BY 2-DIGIT SIC

YEAR	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1981	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1982	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
1983	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
1984	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
1985	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08
1986	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
1987	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13
1988	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15
1989	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17
1990	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
1991	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22
1992	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24
1993	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27
1994	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29
1995	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32
1996	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35
1997	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37
1998	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40
1999	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43
2000	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46

ANNUAL RATES OF GROWTH

	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1981-1985	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1985-1990	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1990-1995	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1995-2000	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1981-2000	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%

037 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

WYOMING (REGION=North Central)

DEMOGRAPHIC DATA

YEAR	PEOPLE	HOUSE-HOLDS	PERSONAL INCOME	INCOME/HH	APTS	URBAN RATIO	--RATIO OF TOTAL COMMERCIAL ACTIVITY-- MINING	AGRICULT	TRANSP	CONSTRUCT	NON-MFG/ TOT EARN
			(\$000,000)	(\$1981/HH)	(RATIOS)						
1981	487249	173935	5738	32989	.0941	1.0000	.1081	.0802	.1038	.0903	.9324
1982	504059	182249	5652	31012	.0955	1.0000	.1069	.0787	.1033	.0904	.9322
1983	521450	190960	5821	30485	.0969	1.0000	.1057	.0772	.1027	.0905	.9321
1984	539439	200088	6078	30375	.0983	1.0000	.1046	.0757	.1021	.0906	.9319
1985	558050	209652	6321	30149	.0998	1.0000	.1035	.0742	.1016	.0907	.9317
1986	569099	215627	6529	30281	.1013	1.0000	.1023	.0728	.1010	.0908	.9316
1987	580368	221772	6745	30413	.1028	1.0000	.1012	.0714	.1005	.0909	.9314
1988	591858	228094	6967	30546	.1044	1.0000	.1001	.0701	.1000	.0910	.9312
1989	603578	234594	7197	30680	.1059	1.0000	.0991	.0687	.0995	.0911	.9311
1990	615528	241280	7435	30814	.1075	1.0000	.0980	.0674	.0989	.0912	.9309
1991	623531	246105	7643	31056	.1091	1.0000	.0969	.0661	.0983	.0913	.9307
1992	631636	251028	7857	31299	.1108	1.0000	.0958	.0649	.0977	.0914	.9305
1993	639847	256048	8077	31545	.1124	1.0000	.0948	.0636	.0971	.0915	.9303
1994	648165	261169	8303	31792	.1142	1.0000	.0937	.0624	.0965	.0916	.9301
1995	656591	266393	8536	32041	.1160	1.0000	.0927	.0613	.0960	.0917	.9299
1996	665127	271720	8775	32293	.1177	1.0000	.0917	.0601	.0954	.0918	.9297
1997	673774	277155	9028	32546	.1196	1.0000	.0906	.0590	.0948	.0919	.9295
1998	682533	282698	9273	32801	.1214	1.0000	.0896	.0578	.0942	.0920	.9293
1999	691406	288351	9533	33059	.1232	1.0000	.0886	.0568	.0937	.0921	.9291
2000	700394	294119	9799	33318	.1251	1.0000	.0876	.0557	.0931	.0922	.9289

ANNUAL RATES OF GROWTH

1981-1985	3.45%	4.78%	2.45%	-2.23%	1.48%	.00%	-1.08%	-1.93%	-.53%	.11%	-.02%
1985-1990	1.98%	2.85%	3.30%	.44%	1.50%	.00%	-1.09%	-1.90%	-.54%	.11%	-.02%
1990-1995	1.30%	2.00%	2.80%	.78%	1.53%	.00%	-1.11%	-1.88%	-.59%	.11%	-.02%
1995-2000	1.30%	2.00%	2.80%	.78%	1.52%	.00%	-1.13%	-1.90%	-.61%	.11%	-.02%
1981-2000	1.93%	2.80%	2.86%	.05%	1.51%	.00%	-1.10%	-1.90%	-.57%	.11%	-.02%

#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

WYOMING (REGION=North Central)

ENERGY PRICES

	GAS			ELECTRIC			PETROLEUM				
YEAR	RESIDENT	COMMERC	INDUSTR	RESIDENT	COMMERC	INDUSTR	RESIDENT	COMMERC	INDUSTR	COAL	LPG
	-------(#1981/MMBTU)-------			(#1981/KWH)	----(INDEX)------		(#1981/GAL)	-----(INDEX)-----		(INDEX)	(#1981/GAL)
1981	3.37	3.04	2.75	.0602	.0554	.0306	1.2050	100.00	100.00	100.00	.4800
1982	3.93	3.60	3.31	.0691	.0635	.0351	1.1027	91.51	91.51	103.00	.5050
1983	4.06	3.73	3.44	.0685	.0629	.0348	.9820	81.49	81.49	106.09	.5312
1984	4.00	3.67	3.38	.0722	.0664	.0367	.9538	79.15	79.15	109.27	.5588
1985	3.84	3.51	3.22	.0782	.0719	.0398	.9376	77.81	77.81	112.55	.5879
1986	3.85	3.52	3.23	.0853	.0784	.0434	.9442	78.36	78.36	115.93	.6185
1987	4.08	3.75	3.46	.0840	.0772	.0427	.9508	78.91	78.91	119.41	.6506
1988	4.49	4.16	3.87	.0880	.0809	.0447	.9575	79.46	79.46	122.99	.6845
1989	4.94	4.61	4.32	.0858	.0789	.0436	.9642	80.01	80.01	126.68	.7201
1990	5.27	4.94	4.65	.0897	.0825	.0456	.9709	80.58	80.58	130.48	.7575
1991	5.43	5.10	4.81	.0886	.0814	.0450	.9826	81.54	81.54	134.39	.7969
1992	5.42	5.09	4.80	.0889	.0818	.0452	.9944	82.52	82.52	138.42	.8383
1993	5.37	5.04	4.75	.0884	.0812	.0449	1.0063	83.51	83.51	142.58	.8819
1994	5.45	5.12	4.83	.0877	.0807	.0446	1.0184	84.51	84.51	146.85	.9278
1995	5.59	5.26	4.97	.0852	.0783	.0433	1.0306	85.53	85.53	151.26	.9760
1996	5.82	5.49	5.20	.0844	.0775	.0429	1.0512	87.24	87.24	155.80	1.0268
1997	6.05	5.72	5.43	.0835	.0767	.0424	1.0722	88.98	88.98	160.47	1.0802
1998	6.28	5.95	5.66	.0827	.0760	.0420	1.0937	90.76	90.76	165.28	1.1363
1999	6.55	6.22	5.93	.0814	.0748	.0414	1.1156	92.58	92.58	170.24	1.1954
2000	6.84	6.51	6.22	.0799	.0734	.0406	1.1379	94.43	94.43	175.35	1.2576

ANNUAL RATES OF GROWTH

1981-1985	3.32%	3.66%	4.02%	6.73%	6.73%	6.73%	-6.08%	-6.08%	-6.08%	3.00%	5.20%
1985-1990	6.54%	7.07%	7.63%	2.70%	2.70%	2.70%	.70%	.70%	.70%	3.00%	5.20%
1990-1995	1.19%	1.26%	1.34%	-1.03%	-1.03%	-1.03%	1.20%	1.20%	1.20%	3.00%	5.20%
1995-2000	4.12%	4.36%	4.59%	-1.27%	-1.27%	-1.27%	2.00%	2.00%	2.00%	3.00%	5.20%
1981-2000	3.80%	4.09%	4.39%	1.50%	1.50%	1.50%	-.30%	-.30%	-.30%	3.00%	5.20%

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#37 -- ADDABBO - HEINZ SCENARIO                                              FRI, MAY 13, 1983,  3:37 PM

WYOMING  (REGION=North Central        )

                                 VALUE ADDED INDEXES BY 2-DIGIT SIC
                                 ----------------------------------

                                                                            PRIMARY  FABRIC.          ELECTRIC
YEAR      FOOD  TEXTILE   LUMBER     PAPER CHEMICAL   PETROL   RUBBER    STONE    METAL    METAL  MACHINE  MACHINE   TRANSP    OTHER
----  --------  -------  -------   -------  -------  -------  -------  -------  -------  -------  -------  -------  -------  -------
1981      1.00     1.00     1.00      1.00     1.00     1.00     1.00     1.00     1.00     1.00     1.00     1.00     1.00     1.00
1982       .99      .89      .91       .93      .88     1.01      .90      .85      .65      .82      .81      .95      .95      .92
1983      1.01      .93      .94       .97      .92     1.02      .95      .88      .69      .85      .86     1.00      .98      .98
1984      1.04      .97      .97      1.01      .95     1.04     1.00      .92      .73      .89      .91     1.05     1.01     1.04
1985      1.07     1.01     1.01      1.05      .99     1.05     1.06      .96      .77      .92      .96     1.10     1.04     1.10
1986      1.10     1.06     1.05      1.10     1.05     1.05     1.13     1.01      .81      .96     1.02     1.18     1.09     1.14
1987      1.12     1.11     1.09      1.15     1.11     1.05     1.20     1.07      .84     1.00     1.08     1.26     1.14     1.17
1988      1.15     1.17     1.13      1.20     1.18     1.05     1.28     1.14      .87     1.04     1.15     1.34     1.19     1.21
1989      1.18     1.23     1.17      1.26     1.25     1.05     1.36     1.21      .91     1.08     1.22     1.43     1.24     1.25
1990      1.21     1.29     1.22      1.32     1.32     1.05     1.45     1.28      .94     1.12     1.29     1.53     1.30     1.29
1991      1.24     1.34     1.26      1.36     1.38     1.05     1.54     1.33      .98     1.15     1.35     1.60     1.33     1.33
1992      1.27     1.40     1.30      1.41     1.43     1.05     1.64     1.39     1.01     1.19     1.41     1.67     1.36     1.36
1993      1.31     1.46     1.34      1.46     1.49     1.05     1.75     1.45     1.05     1.22     1.47     1.75     1.39     1.40
1994      1.34     1.52     1.38      1.50     1.54     1.05     1.86     1.51     1.09     1.25     1.54     1.83     1.42     1.44
1995      1.38     1.59     1.43      1.56     1.60     1.04     1.98     1.57     1.12     1.29     1.61     1.91     1.45     1.48
1996      1.41     1.66     1.47      1.61     1.67     1.04     2.08     1.62     1.16     1.32     1.68     2.00     1.48     1.52
1997      1.45     1.73     1.52      1.66     1.74     1.04     2.18     1.68     1.21     1.36     1.76     2.09     1.51     1.56
1998      1.49     1.80     1.57      1.72     1.81     1.04     2.28     1.73     1.25     1.40     1.84     2.18     1.55     1.60
1999      1.53     1.88     1.62      1.78     1.88     1.04     2.39     1.79     1.29     1.44     1.92     2.28     1.58     1.65
2000      1.56     1.96     1.67      1.84     1.96     1.03     2.51     1.85     1.34     1.48     2.00     2.38     1.62     1.70


ANNUAL RATES OF GROWTH
----------------------

1981-1985 1.71%     .25%     .25%     1.23%    -.25%    1.23%    1.47%   -1.02%   -6.33%   -2.06%   -1.02%    2.41%     .99%    2.41%
1985-1990 2.49%    5.02%    3.85%     4.68%    5.92%     .00%    6.47%    5.92%    4.07%    4.01%    6.09%    6.82%    4.56%    3.24%
1990-1995 2.66%    4.27%    3.23%     3.40%    3.92%    -.19%    6.43%    4.17%    3.57%    2.87%    4.53%    4.54%    2.21%    2.79%
1995-2000 2.48%    4.27%    3.15%     3.36%    4.14%    -.19%    4.86%    3.34%    3.65%    2.79%    4.43%    4.50%    2.24%    2.81%

1981-2000 2.37%    3.61%    2.74%     3.26%    3.61%     .16%    4.96%    3.29%    1.55%    2.08%    3.72%    4.67%    2.57%    2.83%
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037 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

WYOMING (REGION=North Central)

WAGE INDEXES BY 2-DIGIT SIC

YEAR	FOOD	TEXTILE	LUMBER	PAPER	CHEMICAL	PETROL	RUBBER	STONE	PRIMARY METAL	FABRIC. METAL	MACHINE	ELECTRIC MACHINE	TRANSP	OTHER
1981	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1982	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
1983	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
1984	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
1985	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08
1986	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
1987	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13
1988	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15
1989	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17
1990	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
1991	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22
1992	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24
1993	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27
1994	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29
1995	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32
1996	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35
1997	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37
1998	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40
1999	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43
2000	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46

ANNUAL RATES OF GROWTH

1981-1985	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1985-1990	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1990-1995	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1995-2000	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1981-2000	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%

037 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

NATIONAL GAS DEMAND MODEL

ANNUAL SALES, SUPPLY AND PRICE OF GAS

	GAS SALES						AVERAGE GAS PRICE			
YEAR	RESIDENTIAL	COMMERCIAL	INDUSTRIAL AND ALL OTHER	TOTAL SALES	GAS SUPPLY	ANNUAL SUPPLY DEFICIT	RESIDENTIAL	COMMERCIAL AND ALL OTHER	INDUSTRIAL	DEMAND WEIGHTED AVERAGE PRICE
	(BCF)				(BCF)	(BCF)	($/MMBTU IN $1981)			
1981	4645.58	2479.52	6965.24	14090.34	.00	.00	4.10	3.83	3.28	3.65
1982	4394.74	2371.78	6139.39	12905.91	.00	.00	4.66	4.39	3.83	4.22
1983	4393.57	2337.30	5885.58	12616.46	.00	.00	4.79	4.53	3.96	4.36
1984	4533.86	2337.08	5758.11	12629.05	.00	.00	4.73	4.47	3.91	4.31
1985	4753.67	2366.37	5769.63	12889.67	.00	.00	4.57	4.31	3.75	4.15
1986	4864.72	2367.47	5872.20	13104.39	.00	.00	4.58	4.32	3.76	4.17
1987	4868.56	2325.81	5913.57	13107.93	.00	.00	4.81	4.55	3.99	4.40
1988	4789.82	2251.12	5871.13	12912.07	.00	.00	5.23	4.97	4.40	4.81
1989	4716.56	2172.11	5771.73	12660.40	.00	.00	5.68	5.42	4.86	5.26
1990	4705.85	2112.56	5655.25	12473.66	.00	.00	6.02	5.75	5.19	5.60
1991	4762.91	2078.04	5563.58	12404.53	.00	.00	6.18	5.92	5.35	5.76
1992	4896.86	2067.33	5532.88	12497.07	.00	.00	6.17	5.91	5.34	5.76
1993	5039.97	2064.80	5572.82	12677.60	.00	.00	6.12	5.86	5.29	5.71
1994	5154.64	2049.17	5643.57	12847.38	.00	.00	6.20	5.94	5.38	5.80
1995	5231.61	2027.27	5703.83	12962.71	.00	.00	6.34	6.08	5.52	5.94
1996	5288.95	1996.26	5767.34	13052.55	.00	.00	6.57	6.32	5.75	6.17
1997	5332.04	1966.08	5816.85	13114.97	.00	.00	6.80	6.55	5.98	6.40
1998	5398.14	1937.13	5859.79	13195.06	.00	.00	7.03	6.78	6.21	6.63
1999	5441.34	1905.19	5888.58	13235.11	.00	.00	7.31	7.06	6.48	6.90
2000	5487.44	1872.50	5919.10	13279.04	.00	.00	7.60	7.35	6.77	7.20

ANNUAL RATES OF GROWTH

1981-1985	.58%	-1.16%	-4.60%	-2.20%	.00%	.00%	2.76%	2.99%	3.41%	3.32%
1985-1990	-.20%	-2.24%	-.40%	-.65%	.00%	.00%	5.65%	5.96%	6.72%	6.14%
1990-1995	2.14%	-.02%	.17%	.77%	.00%	.00%	1.05%	1.12%	1.24%	1.19%
1995-2000	.96%	-1.58%	.74%	.40%	.00%	.00%	3.69%	3.85%	4.19%	3.92%
1981-2000	.88%	-1.47%	-.85%	-.31%	.00%	.00%	3.30%	3.49%	3.89%	3.64%

ATTACHMENT G

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#37 -- ADDABBO - HEINZ SCENARIO                                                          FRI, MAY 13, 1983,  3:37 PM

NATIONAL GAS DEMAND MODEL

                            1981    1982    1983    1984    1985    1986    1987    1988    1989    1990    1991    1992    1993    1994    1995
                            ----    ----    ----    ----    ----    ----    ----    ----    ----    ----    ----    ----    ----    ----    ----

SPACE HEATING
SATURATION (%)
  EXISTING HOMES                   52.96   52.95   53.09   53.39   53.55   53.47   53.19   52.82   52.46   52.20   52.09   52.05   51.95   51.81
  NEW HOMES                        56.78   53.12   54.76   57.62   58.66   56.93   53.10   49.03   46.56   45.98   47.37   49.17   49.56   49.35
  TOTAL HOUSING STOCK      53.68   53.08   52.96   53.14   53.52   53.69   53.57   53.19   52.71   52.30   52.05   51.98   51.98   51.89   51.75


WATER HEATING
SATURATION (%)
  EXISTING HOMES                   50.45   50.24   50.80   51.73   52.03   51.56   50.61   49.59   48.88   48.54   48.65   48.88   48.81   48.61
  NEW HOMES                        55.44   52.14   53.73   56.43   57.46   55.86   52.33   48.56   46.28   45.75   47.05   48.73   49.12   48.93
  TOTAL HOUSING STOCK      52.66   50.60   50.30   50.89   51.88   52.18   51.68   50.65   49.56   48.81   48.48   48.61   48.88   48.82   48.62


COOKING
SATURATION (%)
  EXISTING HOMES                   36.67   36.29   36.87   37.61   37.62   37.28   36.43   35.66   34.97   34.64   34.59   34.14   34.00   33.57
  NEW HOMES                        29.78   28.98   31.34   34.83   34.53   33.21   30.18   27.70   25.75   25.31   25.70   24.12   24.48   22.81
  TOTAL HOUSING STOCK      37.55   36.46   36.06   36.69   37.49   37.54   37.17   36.26   35.44   34.72   34.42   34.37   33.90   33.77   33.31


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES                    9.35    9.48   10.02   10.68   10.98   11.01   10.85   10.71   10.66   10.77   11.00   11.10   11.24   11.22
  NEW HOMES                        15.70   15.69   16.62   17.31   17.16   17.09   16.60   16.46   15.96   15.95   15.95   14.23   14.60   13.60
  TOTAL HOUSING STODR       9.85    9.55    9.67   10.23   10.89   11.14   11.18   11.01   10.87   10.80   10.89   11.12   11.17   11.32   11.28


RESIDENTIAL
CUSTOMERS                  44.46   44.49   45.23   46.62   48.26   49.24   49.82   50.80   50.16   50.45   50.89   51.61   52.24   52.90   53.37

HOUSEHOLDS                 81710   83511   85356   87248   89188   90761   92364   93999   95665   97364   98778  100213  101672  103154  104659
(MILLIONS)
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#37 -- ADDABBO - HEINZ SCENARIO                                    FRI, MAY 13, 1983,  3:37 PM

NATIONAL GAS DEMAND MODEL

                          1996   1997   1998   1999   2000
                          ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----


SPACE HEATING
SATURATION (%)
  EXISTING HOMES         51.60  51.38  51.15  50.89  50.60
  NEW HOMES              48.43  47.58  46.80  45.71  44.53
  TOTAL HOUSING STOCK    51.52  51.29  51.04  50.76  50.45


WATER HEATING
SATURATION (%)
  EXISTING HOMES         48.22  47.83  47.45  47.01  46.53
  NEW HOMES              48.08  47.29  46.57  45.57  44.48
  TOTAL HOUSING STOCK    48.21  47.82  47.43  46.97  46.48


COOKING
SATURATION (%)
  EXISTING HOMES         33.18  32.40  32.02  31.51  30.99
  NEW HOMES              22.37  19.95  19.79  18.40  17.70
  TOTAL HOUSING STOCK    32.92  32.10  31.73  31.19  30.66


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES         11.22  11.06  11.05  10.95  10.88
  NEW HOMES              13.86  12.33  12.73  12.11  12.13
  TOTAL HOUSING STODR    11.28  11.09  11.09  10.98  10.91


RESIDENTIAL
CUSTOMERS                53.79  54.03  54.47  54.79  55.10

HOUSEHOLDS              106189 107743 109323 110927 112558
(MILLIONS)

AVERAGE ANNUAL GROWTH RATE OF RESIDENTIAL CUSTOMERS, 1981-2000:   1.13%
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#37 -- ADDABBO - HEINZ SCENARIO                                                          FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR REGION: 1 -- New England

                                                 ANNUAL SALES, SUPPLY AND PRICE OF GAS

                          GAS SALES                                                          AVERAGE GAS PRICE
          -----------------------------------------------                         ------------------------------------    DEMAND
                                      INDUSTRIAL                             ANNUAL                COMMERCIAL                 WEIGHTED
                                         AND         TOTAL        GAS        SUPPLY                   AND                     AVERAGE
 YEAR   RESIDENTIAL  COMMERCIAL      ALL OTHER      SALES       SUPPLY      DEFICIT   RESIDENTIAL  ALL OTHER   INDUSTRIAL      PRICE
 ----   ----------   ----------     ----------   ----------   ----------  ----------  ----------   ----------  ----------   ----------
        -------------------(  BCF  )-------------------       (  BCF  )   (  BCF  )   ---------------($/MMBTU IN $1981)---------------
 1981     148.24        82.50         67.69        298.43          .00         .00        6.30        5.61        4.84         5.77
 1982     143.73        80.11         62.27        286.11          .00         .00        6.86        6.17        5.40         6.35
 1983     144.93        79.33         61.08        285.33          .00         .00        6.99        6.30        5.53         6.48
 1984     149.69        79.44         60.49        289.63          .00         .00        6.93        6.24        5.47         6.43
 1985     157.24        80.36         60.41        298.01          .00         .00        6.77        6.08        5.31         6.28
 1986     162.40        80.67         61.17        304.24          .00         .00        6.70        6.09        5.32         6.30
 1987     166.41        80.01         62.00        308.42          .00         .00        7.01        6.32        5.55         6.54
 1988     167.28        78.44         62.73        308.46          .00         .00        7.42        6.73        5.96         6.95
 1989     168.06        76.66         63.27        307.99          .00         .00        7.87        7.18        6.41         7.40
 1990     170.59        75.32         63.65        309.56          .00         .00        8.20        7.51        6.74         7.73
 1991     174.74        74.61         63.83        313.18          .00         .00        8.36        7.67        6.90         7.90
 1992     180.78        74.60         64.26        319.63          .00         .00        8.35        7.66        6.89         7.90
 1993     187.61        74.88         65.04        327.54          .00         .00        8.30        7.61        6.84         7.85
 1994     193.30        74.82         65.99        334.12          .00         .00        8.39        7.69        6.92         7.94
 1995     198.31        74.59         67.06        339.96          .00         .00        8.53        7.83        7.06         8.08
 1996     202.67        74.10         68.03        344.80          .00         .00        8.76        8.06        7.29         8.32
 1997     207.23        73.62         69.03        349.88          .00         .00        8.99        8.29        7.52         8.55
 1998     212.14        73.19         69.93        355.26          .00         .00        9.22        8.52        7.75         8.78
 1999     216.51        72.65         70.83        359.99          .00         .00        9.49        8.79        8.02         9.06
 2000     220.86        72.06         71.68        364.61          .00         .00        9.78        9.08        8.31         9.35


ANNUAL RATES OF GROWTH
----------------------

1981-1985    1.40%       -.65%        -2.80%        -.04%         .00%        .00%       1.83%       2.03%       2.35%        2.14%
1985-1990    1.64%      -1.29%         1.05%         .76%         .00%        .00%       3.92%       4.32%       4.89%        4.23%
1990-1995    3.06%       -.19%         1.05%        1.89%         .00%        .00%        .78%        .84%        .93%         .89%
1995-2000    2.10%       -.69%         1.34%        1.41%         .00%        .00%       2.78%       3.01%       3.32%        2.96%
---------
1981-2000    2.12%       -.71%          .30%        1.06%         .00%        .00%       2.35%       2.57%       2.89%        2.57%
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#37 -- ADDABBO - HEINZ SCENARIO                                                      FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR REGION: 1 -- New England

                        1981   1982   1983   1984   1985   1986   1987   1988   1989   1990   1991   1992   1993   1994   1995
                        ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----


SPACE HEATING
SATURATION (%)
  EXISTING HOMES               24.11  24.44  24.74  25.13  25.53  25.86  26.10  26.24  26.34  26.44  26.58  26.77  26.96  27.14
  NEW HOMES                    37.34  33.48  35.81  39.40  40.83  39.58  36.36  33.08  31.33  31.59  33.26  35.34  36.16  36.40
  TOTAL HOUSING STOCK  24.34  24.47  24.68  25.03  25.51  25.92  26.22  26.37  26.42  26.47  26.56  26.73  26.96  27.16  27.35


WATER HEATING
SATURATION (%)
  EXISTING HOMES               30.31  30.43  30.85  31.45  31.80  31.86  31.67  31.38  31.19  31.15  31.31  31.55  31.67  31.74
  NEW HOMES                    38.15  34.54  36.86  40.33  41.69  40.51  37.43  34.27  32.58  32.80  34.41  36.40  37.18  37.40
  TOTAL HOUSING STOCK  31.29  30.52  30.54  31.01  31.69  32.06  32.08  31.82  31.46  31.22  31.18  31.38  31.66  31.80  31.87


COOKING
SATURATION (%)
  EXISTING HOMES               31.77  31.68  32.00  32.75  32.75  33.08  32.49  31.87  31.45  31.25  31.07  30.86  30.53  30.03
  NEW HOMES                    29.59  29.04  29.83  32.45  31.65  33.10  29.71  26.76  25.07  24.62  23.86  23.00  21.82  20.02
  TOTAL HOUSING STOCK  32.30  31.71  31.61  31.94  32.74  32.72  33.08  32.41  31.74  31.28  31.10  30.91  30.68  30.34  29.80


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES                6.03   6.28   6.68   7.19   7.44   7.69   7.70   7.68   7.70   7.79   7.89   7.96   7.96   7.87
  NEW HOMES                    15.69  15.17  14.65  15.11  13.95  15.04  13.42  12.06  11.17  10.89   9.81   8.65   7.64   6.45
  TOTAL HOUSING STODR   6.27   6.28   6.52   6.90   7.40   7.61   7.88   7.85   7.79   7.79   7.86   7.93   7.98   7.95   7.84


RESIDENTIAL
CUSTOMERS              16.25  16.36  16.66  17.12  17.72  18.12  18.53  18.70  18.84  19.04  19.25  19.52  19.80  20.04  20.23

HOUSEHOLDS             44367  45128  45903  46691  47494  48269  49057  49859  50675  51505  52168  52841  53522  54213  54913
(HUNDRED-THOUSANDS)
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#37 -- ADDABBO - HEINZ SCENARIO                                          FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR REGION: 1 -- New England

                          1996   1997   1998   1999   2000
                          ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----


SPACE HEATING
SATURATION (%)
  EXISTING HOMES          27.30  27.45  27.59  27.71  27.81
  NEW HOMES               36.03  35.72  35.47  34.94  34.31
  TOTAL HOUSING STOCK     27.50  27.64  27.77  27.87  27.96


WATER HEATING
SATURATION (%)
  EXISTING HOMES          31.72  31.69  31.66  31.59  31.50
  NEW HOMES               37.03  36.72  36.47  35.94  35.32
  TOTAL HOUSING STOCK     31.84  31.80  31.77  31.69  31.59


COOKING
SATURATION (%)
  EXISTING HOMES          29.56  29.08  28.69  28.17  27.66
  NEW HOMES               18.66  17.43  16.63  15.42  14.40
  TOTAL HOUSING STOCK     29.31  28.82  28.41  27.88  27.36


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES           7.77   7.66   7.56   7.42   7.27
  NEW HOMES                5.71   5.07   4.66   4.11   3.69
  TOTAL HOUSING STODR      7.72   7.60   7.49   7.34   7.19


RESIDENTIAL
CUSTOMERS                 20.41  20.59  20.78  20.94  21.10

HOUSEHOLDS                55622  56341  57070  57808  58557
(HUNDRED-THOUSANDS)

AVERAGE ANNUAL GROWTH RATE OF RESIDENTIAL CUSTOMERS, 1981-2000:   1.38%
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#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

GAS DEMAND MODEL FOR REGION: 2 -- New York-New Jersey

ANNUAL SALES, SUPPLY AND PRICE OF GAS

	GAS SALES						AVERAGE GAS PRICE			
YEAR	RESIDENTIAL	COMMERCIAL	INDUSTRIAL AND ALL OTHER	TOTAL SALES	GAS SUPPLY	ANNUAL SUPPLY DEFICIT	RESIDENTIAL	COMMERCIAL AND ALL OTHER	INDUSTRIAL	DEMAND WEIGHTED AVERAGE PRICE
	(BCF)				(BCF)	(BCF)	($/MMBTU IN $1981)			
1981	494.99	231.00	209.05	935.04	.00	.00	5.06	4.57	4.02	4.70
1982	468.97	222.04	172.04	863.05	.00	.00	5.63	5.14	4.52	5.29
1983	465.71	218.79	167.34	851.84	.00	.00	5.77	5.27	4.71	5.43
1984	474.79	218.36	166.41	859.56	.00	.00	5.71	5.22	4.65	5.38
1985	490.59	220.35	169.23	880.17	.00	.00	5.56	5.06	4.49	5.23
1986	499.05	220.27	174.34	893.66	.00	.00	5.50	5.07	4.50	5.24
1987	499.95	216.81	177.45	894.21	.00	.00	5.82	5.31	4.73	5.48
1988	493.60	210.59	178.00	882.19	.00	.00	6.24	5.72	5.14	5.90
1989	487.83	203.92	177.00	868.75	.00	.00	6.70	6.18	5.59	6.35
1990	487.95	198.77	175.27	861.99	.00	.00	7.04	6.51	5.93	6.69
1991	493.83	195.71	174.45	863.99	.00	.00	7.21	6.67	6.09	6.86
1992	505.25	194.67	175.56	875.48	.00	.00	7.21	6.67	6.08	6.86
1993	518.75	194.41	179.34	892.51	.00	.00	7.16	6.62	6.03	6.82
1994	528.19	193.04	183.51	904.74	.00	.00	7.25	6.70	6.11	6.90
1995	535.24	191.17	187.19	913.59	.00	.00	7.39	6.85	6.25	7.05
1996	540.14	188.50	190.40	919.04	.00	.00	7.63	7.08	6.48	7.28
1997	545.75	185.92	193.83	925.51	.00	.00	7.87	7.31	6.71	7.51
1998	551.57	183.43	196.32	931.32	.00	.00	8.10	7.55	6.94	7.75
1999	556.73	180.67	198.50	935.91	.00	.00	8.38	7.82	7.21	8.02
2000	561.32	177.82	200.68	939.82	.00	.00	8.60	8.12	7.50	8.32

ANNUAL RATES OF GROWTH

1981-1985	-.22%	-1.17%	-5.15%	-1.50%	.00%	.00%	2.41%	2.55%	2.82%	2.60%
1985-1990	-.11%	-2.04%	.70%	-.42%	.00%	.00%	4.84%	5.18%	5.70%	5.06%
1990-1995	1.87%	-.78%	1.32%	1.17%	.00%	.00%	.99%	1.01%	1.07%	1.03%
1995-2000	.96%	-1.44%	1.40%	.57%	.00%	.00%	3.25%	3.46%	3.72%	3.38%
1981-2000	.66%	-1.37%	-.21%	.03%	.00%	.00%	2.88%	3.06%	3.34%	3.05%

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037 -- ADDABBO - HEINZ SCENARIO                                                  FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR REGION: 2 -- New York-New Jersey

                          1981   1982   1983   1984   1985   1986   1987   1988   1989   1990   1991   1992   1993   1994   1995
                          ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----

SPACE HEATING
SATURATION (%)
  EXISTING HOMES                41.65  41.39  41.26  41.25  41.15  40.91  40.56  40.15  39.78  39.48  39.29  39.16  38.99  38.79
  NEW HOMES                     32.03  29.22  31.14  34.24  35.71  34.62  31.77  28.86  27.29  26.25  27.66  29.49  30.21  30.41
  TOTAL HOUSING STOCK    42.13  41.45  41.14  41.06  41.11  41.04  40.79  40.39  39.93  39.53  39.25  39.09  38.99  38.83  38.64


WATER HEATING
SATURATION (%)
  EXISTING HOMES                45.03  44.63  44.07  45.40  45.39  44.84  43.93  42.99  42.29  41.88  41.83  41.88  41.70  41.43
  NEW HOMES                     32.77  30.10  32.04  34.99  36.39  35.36  32.65  29.87  28.34  27.23  28.56  30.28  30.95  31.13
  TOTAL HOUSING STOCK    46.72  44.78  44.33  44.61  45.18  45.21  44.66  43.71  42.73  42.01  41.63  41.60  41.68  41.51  41.25


COOKING
SATURATION (%)
  EXISTING HOMES                41.18  41.13  41.78  42.53  42.70  42.71  42.05  41.44  41.06  40.97  40.84  40.70  40.36  39.73
  NEW HOMES                     46.12  44.66  45.74  47.08  46.76  45.91  42.01  38.73  36.77  35.96  34.77  33.61  31.84  29.00
  TOTAL HOUSING STOCK    42.20  41.28  41.21  41.86  42.63  42.78  42.78  42.05  41.38  40.98  40.88  40.73  40.58  40.21  39.55


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES                10.05  10.26  10.80  11.40  11.69  11.83  11.71  11.61  11.62  11.77  11.93  12.09  12.14  12.06
  NEW HOMES                     22.48  22.00  21.75  21.37  20.76  20.52  19.77  19.17  18.67  18.23  17.36  16.44  15.57  14.50
  TOTAL HOUSING STODR    10.54  10.30  10.50  11.03  11.61  11.87  12.00  11.87  11.76  11.76  11.88  12.02  12.17  12.20  12.10


RESIDENTIAL
CUSTOMERS                54.14  53.72  54.04  54.86  55.85  56.39  56.68  56.56  56.42  56.46  56.63  56.90  57.22  57.38  57.39

HOUSEHOLDS               89822  90777  91744  92724  93717  94628  95551  96486  97433  98394  99134  99883 100638 101401 102171
(HUNDRED-THOUSANDS)
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#37 -- ADDABBO - HEINZ SCENARIO                                          FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR REGION: 2 -- New York-New Jersey

                          1996   1997   1998   1999   2000
                          ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----


SPACE HEATING
SATURATION (%)
  EXISTING HOMES         38.56  38.33  38.10  37.86  37.61
  NEW HOMES              30.04  29.73  29.47  28.95  28.33
  TOTAL HOUSING STOCK    38.41  38.18  37.95  37.70  37.44


WATER HEATING
SATURATION (%)
  EXISTING HOMES         41.01  40.61  40.22  39.79  39.35
  NEW HOMES              30.74  30.42  30.14  29.61  29.00
  TOTAL HOUSING STOCK    40.83  40.43  40.05  39.61  39.16


COOKING
SATURATION (%)
  EXISTING HOMES         39.15  38.63  38.06  37.53  36.90
  NEW HOMES              26.77  25.05  23.26  21.78  20.08
  TOTAL HOUSING STOCK    38.93  38.39  37.81  37.25  36.60


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES         11.96  11.89  11.80  11.71  11.58
  NEW HOMES              13.76  13.19  12.61  12.18  11.70
  TOTAL HOUSING STODR    11.99  11.91  11.81  11.71  11.58


RESIDENTIAL
CUSTOMERS                57.35  57.36  57.34  57.31  57.24

HOUSEHOLDS              102949 103734 104527 105328 106137
(HUNDRED-THOUSANDS)

AVERAGE ANNUAL GROWTH RATE OF RESIDENTIAL CUSTOMERS, 1981-2000:     .29%
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#37 -- ADDABBO - HEINZ SCENARIO                                                  FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR REGION: 3 -- Middle Atlantic

                                       ANNUAL SALES, SUPPLY AND PRICE OF GAS

                               GAS SALES                                                      AVERAGE GAS PRICE
           ----------------------------------------------                         -------------------------------     DEMAND
                                     INDUSTRIAL                          ANNUAL               COMMERCIAL                WEIGHTED
                                        AND         TOTAL       GAS      SUPPLY                  AND                    AVERAGE
 YEAR   RESIDENTIAL  COMMERCIAL     ALL OTHER       SALES      SUPPLY    DEFICIT   RESIDENTIAL ALL OTHER   INDUSTRIAL     PRICE
 ----   ----------   ----------    ----------   ----------  ----------  ----------  ----------  ----------  ----------  ----------
        -------------------( BCF )-------------------      ( BCF )     ( BCF )     --------------($/MMBTU IN $1981)--------------
 1981      501.00       215.25       473.38       1189.63        .00         .00        4.36        3.99        3.50        3.95
 1982      470.86       205.89       389.30       1066.05        .00         .00        4.93        4.55        4.06        4.54
 1983      466.88       202.47       376.95       1046.30        .00         .00        5.06        4.69        4.19        4.68
 1984      476.90       201.91       373.67       1052.48        .00         .00        5.00        4.63        4.13        4.62
 1985      495.03       203.80       379.62       1078.44        .00         .00        4.85        4.47        3.97        4.47
 1986      503.89       203.53       391.08       1098.50        .00         .00        4.86        4.48        3.98        4.48
 1987      501.64       199.76       397.44       1098.85        .00         .00        5.10        4.71        4.21        4.71
 1988      491.37       193.23       397.47       1082.06        .00         .00        5.51        5.13        4.62        5.12
 1989      481.69       186.27       393.71       1061.67        .00         .00        5.97        5.58        5.08        5.57
 1990      478.79       180.90       388.36       1048.06        .00         .00        6.30        5.91        5.41        5.90
 1991      482.90       177.63       385.18       1045.71        .00         .00        6.46        6.07        5.57        6.07
 1992      494.30       176.34       386.69       1057.32        .00         .00        6.46        6.06        5.56        6.06
 1993      507.65       175.77       394.39       1077.81        .00         .00        6.41        6.02        5.51        6.01
 1994      516.13       174.10       403.17       1093.40        .00         .00        6.49        6.10        5.59        6.10
 1995      521.75       171.92       410.92       1104.58        .00         .00        6.64        6.24        5.73        6.24
 1996      525.05       168.97       417.62       1111.64        .00         .00        6.87        6.47        5.96        6.47
 1997      528.81       166.11       424.68       1119.60        .00         .00        7.10        6.70        6.19        6.70
 1998      532.97       163.34       429.69       1126.00        .00         .00        7.34        6.93        6.42        6.93
 1999      535.88       160.31       433.99       1130.18        .00         .00        7.61        7.21        6.69        7.20
 2000      538.42       157.20       438.23       1133.84        .00         .00        7.90        7.50        6.98        7.49


ANNUAL RATES OF GROWTH
----------------------

1981-1985     -.30%       -1.36%       -5.37%       -2.42%        .00%        .00%       2.67%       2.86%       3.20%       3.11%
1985-1990     -.66%       -2.35%         .46%        -.57%        .00%        .00%       5.38%       5.75%       6.34%       5.72%
1990-1995     1.73%       -1.01%        1.14%        1.06%        .00%        .00%       1.04%       1.09%       1.16%       1.11%
1995-2000      .63%       -1.77%        1.30%         .52%        .00%        .00%       3.55%       3.75%       4.03%       3.73%
---------
1981-2000      .38%       -1.64%        -.41%        -.25%        .00%        .00%       3.18%       3.37%       3.69%       3.42%
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#37 -- ADDABBO - HEINZ SCENARIO                                                          FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR REGION: 3 -- Middle Atlantic

                          1981   1982   1983   1984   1985   1986   1987   1988   1989   1990   1991   1992   1993   1994   1995
                          ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----


SPACE HEATING
SATURATION (%)
  EXISTING HOMES                43.45  43.05  42.77  42.62  42.40  42.08  41.61  41.05  40.52  40.04  39.70  39.41  39.09  38.74
  NEW HOMES                     31.49  27.67  29.50  32.79  34.87  32.99  29.01  25.18  23.07  21.82  23.02  24.65  25.08  24.95
  TOTAL HOUSING STOCK    43.99  43.13  42.65  42.42  42.37  42.23  41.87  41.32  40.68  40.11  39.66  39.35  39.10  38.79  38.45


WATER HEATING
SATURATION (%)
  EXISTING HOMES                44.26  43.70  43.77  44.15  44.03  43.39  42.36  41.28  40.42  39.86  39.66  39.57  39.25  38.84
  NEW HOMES                     31.03  27.43  29.23  32.42  34.50  32.67  28.83  25.13  23.09  21.86  23.01  24.58  24.98  24.85
  TOTAL HOUSING STOCK    46.05  43.91  43.27  43.38  43.84  43.00  43.14  42.05  40.90  40.02  39.48  39.31  39.25  38.95  38.55


COOKING
SATURATION (%)
  EXISTING HOMES                35.64  35.29  35.61  36.25  36.45  36.13  35.34  34.54  33.93  33.61  33.55  33.44  33.16  32.61
  NEW HOMES                     30.01  28.65  29.65  31.71  31.87  30.56  27.39  24.57  22.76  22.78  22.83  22.64  21.93  20.28
  TOTAL HOUSING STOCK    36.59  35.49  35.11  35.45  36.13  36.34  36.00  35.16  34.30  33.67  33.38  33.32  33.21  32.92  32.35


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES                 6.51   6.65   7.03   7.58   7.79   7.84   7.75   7.67   7.67   7.78   7.99   8.19   8.38   8.33
  NEW HOMES                     13.36  13.26  13.32  13.38  12.96  12.92  12.81  12.70  12.59  13.25  13.16  13.00  12.83  12.51
  TOTAL HOUSING STODR     6.86   6.69   6.82   7.19   7.66   7.91   7.96   7.87   7.79   7.79   7.89   8.10   8.29   8.48   8.42


RESIDENTIAL
CUSTOMERS                40.25  39.79  40.01  40.74  41.74  42.32  42.48  42.27  42.01  41.90  41.96  42.25  42.58  42.74  42.76

HOUSEHOLDS               88355  89826  91324  92849  94482  95690  96997  98323  99670 101037 102184 103344 104518 105707 106910
(HUNDRED-THOUSANDS)
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#37 -- ADDABBO - HEINZ SCENARIO                                                     FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR REGION: 3 -- Middle Atlantic

                           1996   1997   1998   1999   2000
                           ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----


SPACE HEATING
SATURATION (%)
  EXISTING HOMES          38.36  37.97  37.58  37.17  36.75
  NEW HOMES               24.20  23.53  22.94  22.11  21.22
  TOTAL HOUSING STOCK     38.06  37.66  37.27  36.85  36.42


WATER HEATING
SATURATION (%)
  EXISTING HOMES          38.29  37.75  37.22  36.64  36.06
  NEW HOMES               24.11  23.45  22.87  22.05  21.18
  TOTAL HOUSING STOCK     37.99  37.45  36.92  36.34  35.74


COOKING
SATURATION (%)
  EXISTING HOMES          32.14  31.66  31.19  30.64  30.06
  NEW HOMES               19.19  18.17  17.19  16.07  14.94
  TOTAL HOUSING STOCK     31.87  31.38  30.89  30.33  29.74


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES           8.35   8.37   8.39   8.38   8.36
  NEW HOMES               12.33  12.12  11.91  11.65  11.37
  TOTAL HOUSING STODR      8.44   8.45   8.47   8.45   8.42


RESIDENTIAL
CUSTOMERS                 42.74  42.72  42.69  42.61  42.49

HOUSEHOLDS               108127 109359 110606 111869 113147
(HUNDRED-THOUSANDS)

AVERAGE ANNUAL GROWTH RATE OF RESIDENTIAL CUSTOMERS, 1981-2000:     .29%
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#37 -- ADDABBO - HEINZ SCENARIO                                                              FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR REGION: 4 -- South Atlantic

                                              ANNUAL SALES, SUPPLY AND PRICE OF GAS

                              GAS SALES                                                               AVERAGE GAS PRICE
           -----------------------------------------------                                  ----------------------------------      DEMAND
                                         INDUSTRIAL                                ANNUAL                  COMMERCIAL                     WEIGHTED
                                            AND         TOTAL          GAS         SUPPLY                     AND                         AVERAGE
YEAR    RESIDENTIAL  COMMERCIAL   ALL OTHER     SALES        SUPPLY       DEFICIT     RESIDENTIAL  ALL OTHER    INDUSTRIAL      PRICE
----    -----------  ----------   ----------  ----------   ----------   ----------    ----------   ----------   ----------   ----------
        ---------------------( BCF )-------------------   (  BCF  )    (  BCF  )     --------------($/MMBTU IN $1981)--------------
1981       376.98      256.54       811.05     1444.56          .00          .00          4.26         3.65         3.39         3.66
1982       359.51      244.48       719.11     1323.11          .00          .00          4.83         4.22         3.95         4.24
1983       358.77      240.25       691.91     1290.93          .00          .00          4.96         4.35         4.08         4.38
1984       368.34      239.65       678.77     1286.76          .00          .00          4.90         4.29         4.02         4.32
1985       383.39      242.14       680.45     1305.98          .00          .00          4.74         4.13         3.87         4.17
1986       391.56      241.73       693.68     1326.97          .00          .00          4.75         4.14         3.88         4.18
1987       390.57      236.77       701.31     1328.66          .00          .00          4.99         4.37         4.11         4.41
1988       384.41      228.36       701.08     1313.85          .00          .00          5.40         4.78         4.52         4.82
1989       377.45      219.49       694.40     1291.35          .00          .00          5.85         5.23         4.97         5.27
1990       375.16      212.67       686.02     1273.85          .00          .00          6.19         5.56         5.30         5.61
1991       376.88      208.52       678.81     1264.21          .00          .00          6.35         5.72         5.46         5.77
1992       385.12      206.84       680.19     1272.15          .00          .00          6.34         5.71         5.45         5.76
1993       393.19      206.01       689.78     1288.97          .00          .00          6.29         5.66         5.40         5.72
1994       400.39      203.84       702.57     1306.79          .00          .00          6.38         5.74         5.48         5.80
1995       402.93      201.01       715.12     1319.05          .00          .00          6.52         5.88         5.62         5.94
1996       405.86      197.27       726.82     1329.95          .00          .00          6.75         6.11         5.86         6.17
1997       406.49      193.60       737.17     1337.26          .00          .00          6.99         6.34         6.09         6.40
1998       409.73      190.07       746.71     1346.51          .00          .00          7.22         6.57         6.32         6.63
1999       409.55      186.22       755.02     1350.79          .00          .00          7.49         6.84         6.59         6.90
2000       411.13      182.30       763.11     1356.55          .00          .00          7.78         7.14         6.88         7.19


ANNUAL RATES OF GROWTH
---------------------

1981-1985      .42%      -1.43%      -4.29%      -2.49%         .00%         .00%         2.71%        3.08%        3.33%        3.29%
1985-1990     -.43%      -2.56%        .16%       -.50%         .00%         .00%         5.48%        6.15%        6.52%        6.09%
1990-1995     1.44%      -1.12%        .83%        .70%         .00%         .00%         1.05%        1.13%        1.20%        1.16%
1995-2000      .40%      -1.93%       1.31%        .56%         .00%         .00%         3.61%        3.94%        4.10%        3.89%
---------
1981-2000      .46%      -1.78%       -.32%       -.33%         .00%         .00%         3.22%        3.58%        3.79%        3.61%
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#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

GAS DEMAND MODEL FOR REGION: 4 -- South Atlantic

	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
SPACE HEATING SATURATION (%)															
EXISTING HOMES		30.08	29.84	29.60	29.48	29.36	29.19	28.80	28.45	27.99	27.56	27.25	27.00	26.73	26.45
NEW HOMES		25.45	21.28	22.79	25.76	27.43	25.30	21.24	17.60	15.67	15.45	16.43	17.00	18.09	17.07
TOTAL HOUSING STOCK	30.47	29.91	29.53	29.35	29.34	29.30	29.07	28.64	28.12	27.62	27.23	26.96	26.75	26.49	26.22
WATER HEATING SATURATION (%)															
EXISTING HOMES		22.61	22.37	22.39	22.59	22.60	22.35	21.86	21.30	20.81	20.47	20.33	20.26	20.09	19.87
NEW HOMES		20.61	17.34	18.64	21.15	22.64	20.92	17.62	14.60	13.14	13.01	13.04	14.90	15.24	15.00
TOTAL HOUSING STOCK	23.57	22.54	22.19	22.26	22.54	22.60	22.30	21.73	21.09	20.50	20.27	20.15	20.12	19.95	19.74
COOKING SATURATION (%)															
EXISTING HOMES		16.31	16.19	16.46	16.73	16.90	16.73	16.50	16.34	16.19	16.04	16.20	16.01	16.23	15.86
NEW HOMES		16.51	15.72	17.14	18.21	19.02	17.31	16.54	15.20	14.62	13.94	15.06	13.76	15.32	12.95
TOTAL HOUSING STOCK	16.54	16.32	16.17	16.48	16.78	16.97	16.74	16.50	16.30	16.14	15.90	16.17	15.95	16.20	15.78
CLOTHES DRYING SATURATION (%)															
EXISTING HOMES		2.16	2.35	2.63	2.93	3.17	3.20	3.37	3.45	3.57	3.71	3.92	4.05	4.24	4.20
NEW HOMES		8.39	8.24	8.76	8.70	8.88	8.40	8.90	9.02	9.25	8.94	9.56	8.39	9.51	8.88
TOTAL HOUSING STODR	2.26	2.30	2.57	2.85	3.14	3.35	3.44	3.54	3.62	3.75	3.86	4.07	4.16	4.30	4.30
RESIDENTIAL CUSTOMERS	41.60	41.93	42.63	43.86	45.30	46.36	46.94	47.32	47.55	47.90	48.25	48.99	49.53	50.33	50.61
HOUSEHOLDS (HUNDRED-THOUSANDS)	141044	144853	148771	152802	156947	160266	163657	167122	170643	174201	177352	180480	183663	186985	190209

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037 -- ADDABBO - HEINZ SCENARIO                                                FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR REGION: 4 -- South Atlantic

                         1996   1997   1998   1999   2000
                         ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----


SPACE HEATING
SATURATION (%)
  EXISTING HOMES        26.15  25.83  25.51  25.17  24.82
  NEW HOMES             17.11  16.43  15.83  15.04  14.22
  TOTAL HOUSING STOCK   25.90  25.58  25.25  24.90  24.53


WATER HEATING
SATURATION (%)
  EXISTING HOMES        19.50  19.29  19.00  18.69  18.36
  NEW HOMES             14.47  13.93  13.45  12.81  12.15
  TOTAL HOUSING STOCK   19.44  19.15  18.85  18.53  18.19


COOKING
SATURATION (%)
  EXISTING HOMES        15.93  15.57  15.61  15.21  15.14
  NEW HOMES             13.89  11.96  12.76  10.85  11.21
  TOTAL HOUSING STOCK   15.88  15.47  15.53  15.09  15.04


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES         4.41   4.43   4.54   4.54   4.62
  NEW HOMES              9.03   7.91   8.83   7.68   8.35
  TOTAL HOUSING STODR    4.53   4.52   4.66   4.63   4.73


RESIDENTIAL
CUSTOMERS               51.20  51.42  51.97  52.12  52.54

HOUSEHOLDS             193564 196984 200467 204012 207621
(HUNDRED-THOUSANDS)

AVERAGE ANNUAL GROWTH RATE OF RESIDENTIAL CUSTOMERS, 1981-2000:   1.24%
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#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

GAS DEMAND MODEL FOR REGION: 5 -- Midwest

ANNUAL SALES, SUPPLY AND PRICE OF GAS

YEAR	GAS SALES RESIDENTIAL	GAS SALES COMMERCIAL	GAS SALES INDUSTRIAL AND ALL OTHER	GAS SALES TOTAL SALES	GAS SUPPLY	ANNUAL SUPPLY DEFICIT	AVERAGE GAS PRICE RESIDENTIAL	AVERAGE GAS PRICE COMMERCIAL AND ALL OTHER	AVERAGE GAS PRICE INDUSTRIAL	DEMAND WEIGHTED AVERAGE PRICE
	(BCF)				(BCF)	(BCF)	($/MMBTU IN $1981)			
1981	1599.24	789.94	1359.74	3748.92	.00	.00	3.87	3.66	3.33	3.63
1982	1506.97	753.44	1133.36	3393.77	.00	.00	4.43	4.22	3.08	4.20
1983	1505.68	740.67	1091.16	3337.50	.00	.00	4.56	4.35	4.01	4.33
1984	1554.46	738.96	1076.15	3369.57	.00	.00	4.50	4.29	3.95	4.28
1985	1631.97	746.74	1088.77	3467.49	.00	.00	4.34	4.13	3.79	4.12
1986	1671.28	745.70	1117.03	3534.01	.00	.00	4.34	4.14	3.80	4.13
1987	1671.84	730.08	1132.12	3534.04	.00	.00	4.57	4.37	4.04	4.36
1988	1642.10	705.46	1128.14	3475.70	.00	.00	4.99	4.78	4.45	4.77
1989	1614.27	670.76	1113.53	3406.56	.00	.00	5.44	5.23	4.90	5.22
1990	1607.96	658.36	1094.92	3361.24	.00	.00	5.76	5.56	5.23	5.55
1991	1626.97	646.10	1082.18	3355.33	.00	.00	5.92	5.72	5.39	5.71
1992	1675.15	641.65	1082.74	3399.53	.00	.00	5.91	5.71	5.30	5.70
1993	1724.52	639.62	1100.44	3464.58	.00	.00	5.86	5.66	5.33	5.66
1994	1768.70	633.48	1122.10	3524.28	.00	.00	5.94	5.74	5.41	5.74
1995	1789.73	625.29	1141.07	3556.08	.00	.00	6.08	5.88	5.55	5.88
1996	1812.97	614.29	1157.85	3585.11	.00	.00	6.31	6.11	5.70	6.11
1997	1825.62	603.56	1174.49	3603.67	.00	.00	6.54	6.34	6.01	6.33
1998	1851.15	593.34	1187.14	3631.64	.00	.00	6.77	6.57	6.24	6.57
1999	1860.47	582.09	1196.69	3639.26	.00	.00	7.04	6.84	6.51	6.83
2000	1878.74	570.73	1206.49	3655.97	.00	.00	7.33	7.13	6.80	7.12

ANNUAL RATES OF GROWTH

1981-1985	.51%	-1.40%	-5.40%	-1.93%	.00%	.00%	2.91%	3.07%	3.36%	3.25%
1985-1990	-.30%	-2.49%	.11%	-.62%	.00%	.00%	5.87%	6.13%	6.61%	6.13%
1990-1995	2.17%	-1.03%	.83%	1.13%	.00%	.00%	1.08%	1.13%	1.20%	1.15%
1995-2000	.98%	-1.81%	1.12%	.56%	.00%	.00%	3.81%	3.93%	4.15%	3.93%
1981-2000	.85%	-1.70%	-.63%	-.13%	.00%	.00%	3.43%	3.57%	3.84%	3.62%

#37 -- ADDABBO - HEINZ SCENARIO

FRI, MAY 13, 1983, 3:37 PM

GAS DEMAND MODEL FOR REGION: 5 -- Midwest

	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
SPACE HEATING SATURATION (%)															
EXISTING HOMES		70.54	70.56	70.82	71.30	71.57	71.50	71.17	70.74	70.37	70.14	70.12	70.19	70.17	70.09
NEW HOMES		76.80	72.83	75.31	79.07	80.22	78.44	74.11	69.20	66.21	66.28	68.32	70.83	71.54	71.48
TOTAL HOUSING STOCK	71.50	70.72	70.62	70.95	71.52	71.78	71.67	71.24	70.70	70.27	70.05	70.08	70.21	70.20	70.12
WATER HEATING SATURATION (%)															
EXISTING HOMES		64.44	64.38	65.35	66.84	67.43	66.99	65.98	64.76	64.02	63.79	64.14	64.68	64.79	64.73
NEW HOMES		77.13	73.49	75.91	79.53	80.62	78.97	74.93	70.36	67.60	67.74	69.68	72.05	72.74	72.71
TOTAL HOUSING STOCK	67.26	64.79	64.63	65.65	67.19	67.76	67.29	66.13	64.90	64.11	63.88	64.27	64.84	64.97	64.90
COOKING SATURATION (%)															
EXISTING HOMES		45.22	44.97	45.77	46.91	47.13	46.84	45.87	44.96	44.10	43.75	43.91	43.41	43.79	42.71
NEW HOMES		41.19	40.56	43.34	46.89	47.06	45.91	41.98	38.75	35.68	35.14	36.11	34.01	36.14	31.69
TOTAL HOUSING STOCK	46.40	45.11	44.84	45.71	46.91	47.12	46.82	45.77	44.81	43.89	43.56	43.74	43.20	43.62	42.47
CLOTHES DRYING SATURATION (%)															
EXISTING HOMES		17.36	17.42	18.20	19.21	19.57	19.49	19.05	18.65	18.36	18.37	18.70	18.73	19.04	18.67
NEW HOMES		23.04	23.06	24.09	25.09	24.58	24.75	23.60	23.18	21.73	21.66	21.91	18.96	20.85	16.84
TOTAL HOUSING STODR	18.30	17.52	17.58	18.37	19.37	19.69	19.62	19.16	18.76	18.45	18.44	18.77	18.73	19.08	18.63
RESIDENTIAL CUSTOMERS	109.33	109.06	110.80	114.09	118.09	120.48	121.83	122.14	122.39	122.93	123.98	125.89	127.44	129.44	130.09
HOUSEHOLDS (HUNDRED-THOUSANDS)	163954	166995	170092	173248	1[illegible]6463	179147	181873	184641	187453	190309	192704	195130	197587	200076	202596

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#37 -- ADDABBO - HEINZ SCENARIO                                          FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR REGION: 5 -- Midwest

                            1996   1997   1998   1999   2000
                            ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----


SPACE HEATING
SATURATION (%)
  EXISTING HOMES           69.93  69.75  69.57  69.35  69.10
  NEW HOMES                70.54  69.69  68.92  67.77  66.49
  TOTAL HOUSING STOCK      69.94  69.75  69.56  69.31  69.04


WATER HEATING
SATURATION (%)
  EXISTING HOMES           64.39  64.07  63.76  63.37  62.93
  NEW HOMES                71.86  71.09  70.40  69.35  68.18
  TOTAL HOUSING STOCK      64.56  64.23  63.91  63.50  63.05


COOKING
SATURATION (%)
  EXISTING HOMES           42.73  41.74  41.78  40.63  40.38
  NEW HOMES                32.81  29.25  30.28  26.58  26.85
  TOTAL HOUSING STOCK      42.51  41.46  41.44  40.32  40.07


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES           18.70  18.31  18.33  17.88  17.78
  NEW HOMES                18.57  15.79  17.27  14.47  15.45
  TOTAL HOUSING STODR      18.70  18.25  18.30  17.81  17.73


RESIDENTIAL
CUSTOMERS                131.46 131.96 133.31 133.66 134.69

HOUSEHOLDS               205149 207734 210353 213005 215691
(HUNDRED-THOUSANDS)

AVERAGE ANNUAL GROWTH RATE OF RESIDENTIAL CUSTOMERS, 1981-2000:   1.10%
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037 -- ADDABBO - HEINZ SCENARIO                                                          FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR REGION: 6 -- Southwest

                                           ANNUAL SALES, SUPPLY AND PRICE OF GAS

                           GAS SALES                                                              AVERAGE GAS PRICE
            ------------------------------------------------                          ------------------------------------       DEMAND
                                         INDUSTRIAL                                  ANNUAL                  COMMERCIAL                      WEIGHTED
                                            AND          TOTAL          GAS          SUPPLY                     AND                          AVERAGE
YEAR     RESIDENTIAL  COMMERCIAL       ALL OTHER         SALES         SUPPLY       DEFICIT     RESIDENTIAL  ALL OTHER    INDUSTRIAL       PRICE
----     -----------  ----------       ----------     ----------    ----------   ----------   ----------  ----------   ----------     ----------
         ------------------------(  BCF  )------------------------   (  BCF  )   (  BCF  )   ---------------($/MMBTU IN $1981)---------------
1981        415.25       262.10        2968.86        3646.29           .00          .00         3.62        3.31         3.03           3.12
1982        395.25       250.17        2700.81        3346.23           .00          .00         4.19        3.88         3.59           3.68
1983        400.38       247.15        2572.14        3219.68           .00          .00         4.32        4.01         3.72           3.82
1984        419.17       248.09        2496.22        3163.48           .00          .00         4.26        3.95         3.66           3.76
1985        446.34       252.46        2482.79        3181.59           .00          .00         4.10        3.79         3.50           3.61
1986        461.81       253.21        2510.91        3225.93           .00          .00         4.12        3.80         3.51           3.62
1987        464.77       248.84        2512.84        3226.45           .00          .00         4.35        4.04         3.74           3.85
1988        459.88       240.63        2477.15        3177.66           .00          .00         4.76        4.45         4.15           4.26
1989        455.36       231.99        2415.21        3102.56           .00          .00         5.22        4.90         4.60           4.71
1990        457.70       225.76        2347.21        3030.67           .00          .00         5.55        5.23         4.93           5.05
1991        466.76       222.33        2291.14        2980.22           .00          .00         5.71        5.40         5.09           5.21
1992        484.40       221.65        2258.45        2964.51           .00          .00         5.70        5.39         5.08           5.20
1993        501.92       221.85        2250.55        2974.33           .00          .00         5.66        5.34         5.03           5.16
1994        519.54       220.55        2262.22        3002.31           .00          .00         5.74        5.42         5.11           5.24
1995        529.88       218.48        2265.38        3012.86           .00          .00         5.88        5.56         5.25           5.38
1996        539.97       215.31        2278.81        3034.89           .00          .00         6.11        5.80         5.48           5.61
1997        546.38       212.27        2279.77        3038.42           .00          .00         6.34        6.03         5.71           5.84
1998        558.27       209.38        2284.51        3052.16           .00          .00         6.57        6.26         5.94           6.08
1999        563.74       206.10        2279.74        3049.58           .00          .00         6.85        6.53         6.21           6.35
2000        573.82       202.76        2278.82        3054.60           .00          .00         7.14        6.83         6.49           6.64


ANNUAL RATES OF GROWTH
----------------------

1981-1985    1.82%        -.94%         -4.37%         -3.35%           .00%         .00%        3.18%       3.44%        3.68%          3.73%
1985-1990     .50%       -2.21%         -1.12%          -.97%           .00%         .00%        6.22%       6.66%        7.09%          6.94%
1990-1995    2.94%        -.65%          -.71%          -.12%           .00%         .00%        1.15%       1.23%        1.26%          1.30%
1995-2000    1.61%       -1.48%           .12%           .28%           .00%         .00%        3.96%       4.17%        4.36%          4.28%
---------
1981-2000    1.71%       -1.34%         -1.38%          -.93%           .00%         .00%        3.63%       3.88%        4.10%          4.06%
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#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

GAS DEMAND MODEL FOR REGION: 6 -- Southwest

	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
SPACE HEATING SATURATION (%)															
EXISTING HOMES		64.51	65.10	65.87	66.83	67.56	67.84	67.83	67.70	67.57	67.54	67.67	67.89	68.00	68.06
NEW HOMES		85.65	81.97	83.38	85.93	86.61	84.71	80.37	75.16	71.60	70.71	72.32	74.44	74.70	74.17
TOTAL HOUSING STOCK	65.45	65.29	65.73	66.53	67.54	68.15	68.36	68.22	67.93	67.70	67.63	67.80	68.07	68.18	68.22
WATER HEATING SATURATION (%)															
EXISTING HOMES		63.24	63.40	64.56	66.21	67.00	66.63	65.59	64.47	63.74	63.51	63.84	64.35	64.43	64.32
NEW HOMES		83.90	80.20	81.74	84.44	85.15	83.20	78.79	73.62	70.15	69.33	70.94	73.05	73.34	72.85
TOTAL HOUSING STOCK	66.24	64.01	64.03	65.20	66.09	67.56	67.14	66.00	64.76	63.94	63.67	64.03	64.58	64.67	64.55
COOKING SATURATION (%)															
EXISTING HOMES		47.96	47.55	48.04	48.86	49.02	48.31	47.23	46.13	45.23	44.75	44.72	43.82	44.31	43.02
NEW HOMES		35.86	36.35	39.15	42.61	43.89	41.88	38.72	35.80	33.72	33.21	34.03	30.88	34.01	29.33
TOTAL HOUSING STOCK	48.82	47.51	47.13	47.71	48.63	48.86	48.12	46.96	45.81	44.87	44.44	44.43	43.47	44.03	42.65
CLOTHES DRYING SATURATION (%)															
EXISTING HOMES		8.78	9.28	10.15	11.17	11.89	12.16	12.25	12.35	12.57	12.96	13.50	13.74	14.33	14.32
NEW HOMES		23.65	24.82	26.04	27.02	27.61	27.50	27.54	27.69	27.60	27.65	27.93	25.05	27.56	24.27
TOTAL HOUSING STODR	9.22	9.33	9.86	10.75	11.76	12.38	12.63	12.73	12.83	13.03	13.36	13.89	14.05	14.69	14.59
RESIDENTIAL CUSTOMERS	53.98	54.52	56.10	58.48	61.28	63.11	64.16	64.74	65.23	65.94	66.82	68.18	69.23	70.79	71.39
HOUSEHOLDS (HUNDRED-THOUSANDS)	89624	92160	94770	97455	100218	102378	104585	106841	109147	111503	113459	115449	117475	119538	121637

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037 -- ADDABBO - HEINZ SCENARIO                                              FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR REGION: 6 -- Southwest

                           1996   1997   1998   1999   2000
                           ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----


SPACE HEATING
SATURATION (%)
  EXISTING HOMES          68.00  67.92  67.81  67.63  67.41
  NEW HOMES               72.68  71.26  69.91  68.11  66.13
  TOTAL HOUSING STOCK     68.13  68.01  67.86  67.65  67.37


WATER HEATING
SATURATION (%)
  EXISTING HOMES          63.93  63.54  63.16  62.66  62.12
  NEW HOMES               71.41  70.05  68.76  67.04  65.16
  TOTAL HOUSING STOCK     64.13  63.72  63.31  62.78  62.20


COOKING
SATURATION (%)
  EXISTING HOMES          43.06  41.74  41.76  40.44  40.19
  NEW HOMES               31.13  26.76  28.56  24.46  25.36
  TOTAL HOUSING STOCK     42.73  41.33  41.48  40.01  39.79


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES          14.66  14.57  14.92  14.79  15.01
  NEW HOMES               26.59  23.61  26.00  23.09  24.93
  TOTAL HOUSING STODR     14.99  14.82  15.22  15.02  15.28


RESIDENTIAL
CUSTOMERS                 72.53  72.95  74.09  74.43  75.32

HOUSEHOLDS               123774 125950 128164 130410 132712
(HUNDRED-THOUSANDS)

AVERAGE ANNUAL GROWTH RATE OF RESIDENTIAL CUSTOMERS, 1981-2000:   1.77%
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#37 -- ADDABBO - WEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

GAS DEMAND MODEL FOR REGION: 7 -- Central

ANNUAL SALES, SUPPLY AND PRICE OF GAS

	GAS SALES						AVERAGE GAS PRICE			
YEAR	RESIDENTIAL	COMMERCIAL	INDUSTRIAL AND ALL OTHER	TOTAL SALES	GAS SUPPLY	ANNUAL SUPPLY DEFICIT	RESIDENTIAL	COMMERCIAL AND ALL OTHER	INDUSTRIAL	DEMAND WEIGHTED AVERAGE PRICE
	(BCF)				(BCF)	(BCF)	($/MMBTU IN $1981)			
1981	331.92	192.04	362.01	885.97	.00	.00	3.57	3.13	2.93	3.22
1982	312.14	181.42	337.97	831.52	.00	.00	4.13	3.70	3.50	3.76
1983	311.33	177.72	325.49	814.54	.00	.00	4.26	3.83	3.63	3.91
1984	320.61	176.96	317.83	815.40	.00	.00	4.20	3.77	3.57	3.86
1985	339.28	178.76	317.03	835.07	.00	.00	4.04	3.61	3.41	3.71
1986	346.86	178.09	320.51	845.46	.00	.00	4.05	3.62	3.42	3.72
1987	345.85	173.60	322.54	841.98	.00	.00	4.28	3.85	3.65	3.95
1988	339.01	166.39	322.02	827.42	.00	.00	4.69	4.26	4.06	4.36
1989	332.59	159.02	319.18	810.79	.00	.00	5.14	4.71	4.51	4.81
1990	331.13	153.42	315.45	800.00	.00	.00	5.47	5.04	4.84	5.14
1991	335.24	150.01	311.95	797.20	.00	.00	5.63	5.21	5.00	5.30
1992	344.48	148.50	310.18	803.15	.00	.00	5.61	5.20	4.99	5.30
1993	355.58	147.60	311.41	814.59	.00	.00	5.56	5.15	4.94	5.25
1994	362.87	145.58	314.20	822.64	.00	.00	5.64	5.23	5.02	5.33
1995	368.08	143.06	317.45	828.59	.00	.00	5.70	5.37	5.16	5.47
1996	371.08	139.83	320.94	831.84	.00	.00	6.01	5.60	5.39	5.70
1997	374.39	136.71	324.26	835.36	.00	.00	6.24	5.83	5.62	5.93
1998	378.00	133.70	327.21	838.92	.00	.00	6.47	6.06	5.85	6.16
1999	380.63	130.50	330.27	841.40	.00	.00	6.74	6.33	6.12	6.43
2000	382.96	127.29	333.10	843.35	.00	.00	7.03	6.62	6.41	6.72

ANNUAL RATES OF GROWTH

1981-1985	.55%	-1.70%	-3.26%	-1.47%	.00%	.00%	3.12%	3.59%	3.88%	3.61%
1985-1990	-.49%	-3.01%	-.10%	-.85%	.00%	.00%	6.25%	6.94%	7.27%	6.75%
1990-1995	2.14%	-1.39%	.13%	.70%	.00%	.00%	1.13%	1.25%	1.29%	1.27%
1995-2000	.80%	-2.31%	.97%	.35%	.00%	.00%	3.99%	4.29%	4.44%	4.21%
1981-2000	.76%	-2.14%	-.44%	-.26%	.00%	.00%	3.63%	4.02%	4.20%	3.96%

#37 -- ADDABBO - HEINZ SCENARIO

FRI, MAY 13, 1983, 3:37 PM

GAS DEMAND MODEL FOR REGION: 7 -- Central

	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
SPACE HEATING SATURATION (%)															
EXISTING HOMES		68.78	68.84	69.17	69.73	70.07	70.04	69.75	69.36	69.04	68.86	68.88	69.00	69.02	68.99
NEW HOMES		77.23	73.35	76.09	80.18	81.49	79.71	75.24	70.14	67.05	66.61	68.85	71.58	72.30	72.37
TOTAL HOUSING STOCK	69.77	69.00	68.96	69.36	70.01	70.34	70.28	69.88	69.38	68.99	68.81	68.88	69.06	69.09	69.06
WATER HEATING SATURATION (%)															
EXISTING HOMES		63.21	63.14	64.15	65.73	66.36	65.89	64.76	63.57	62.82	62.60	62.90	63.55	63.68	63.63
NEW HOMES		76.31	72.64	75.42	79.50	80.85	79.14	74.84	69.95	67.03	66.65	68.84	71.51	72.32	72.35
TOTAL HOUSING STOCK	66.13	63.56	63.39	64.46	66.11	66.71	66.22	65.00	63.72	62.92	62.69	63.10	63.72	63.87	63.81
COOKING SATURATION (%)															
EXISTING HOMES		37.25	36.96	37.39	39.69	39.73	39.24	38.38	37.55	36.88	36.80	36.73	36.69	36.40	35.83
NEW HOMES		37.53	35.90	37.21	45.66	44.53	41.43	37.03	33.33	30.63	30.03	30.62	30.45	29.45	27.23
TOTAL HOUSING STOCK	38.04	37.26	36.93	37.39	39.86	39.84	39.29	38.35	37.45	36.73	36.67	36.60	36.55	36.25	35.65
CLOTHES DRYING SATURATION (%)															
EXISTING HOMES		12.87	12.89	13.37	14.70	14.94	14.78	14.41	14.07	13.86	13.94	14.11	14.29	14.29	14.12
NEW HOMES		18.42	17.75	17.49	22.26	20.73	19.45	18.22	17.44	16.46	17.00	16.24	15.30	14.38	12.75
TOTAL HOUSING STODR	13.52	13.02	13.02	13.48	14.91	15.08	14.90	14.51	14.15	13.92	14.01	14.16	14.32	14.29	14.09
RESIDENTIAL CUSTOMERS	28.73	28.70	29.12	29.98	31.18	31.76	32.05	32.13	32.19	32.35	32.66	33.11	33.61	33.97	34.24
HOUSEHOLDS (HUNDRED-THOUSANDS)	43649	44411	45187	45976	46779	47459	48150	48852	49563	50285	50882	51486	52090	52716	53343

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#37 -- ADDABBO - HEINZ SCENARIO                                                      FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR REGION: 7 -- Central

                          1996   1997   1998   1999   2000
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SPACE HEATING
SATURATION (%)
  EXISTING HOMES         68.86  68.72  68.58  68.39  68.18
  NEW HOMES              71.41  70.54  69.77  68.58  67.24
  TOTAL HOUSING STOCK    68.91  68.76  68.60  68.40  68.16


WATER HEATING
SATURATION (%)
  EXISTING HOMES         63.29  62.98  62.68  62.29  61.87
  NEW HOMES              71.45  70.66  69.95  68.85  67.61
  TOTAL HOUSING STOCK    63.47  63.15  62.84  62.43  61.99


COOKING
SATURATION (%)
  EXISTING HOMES         35.28  34.72  34.16  33.51  32.84
  NEW HOMES              25.51  23.92  22.43  20.72  19.07
  TOTAL HOUSING STOCK    35.07  34.49  33.91  33.24  32.54


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES         13.91  13.70  13.49  13.22  12.94
  NEW HOMES              11.92  11.14  10.38   9.54   8.74
  TOTAL HOUSING STODR    13.87  13.64  13.42  13.14  12.85


RESIDENTIAL
CUSTOMERS                34.45  34.67  34.09  35.06  35.22

HOUSEHOLDS               53976  54618  55267  55923  56588
(HUNDRED-THOUSANDS)

AVERAGE ANNUAL GROWTH RATE OF RESIDENTIAL CUSTOMERS, 1981-2000:   1.08%
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#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

GAS DEMAND MODEL FOR REGION: 8 -- North Central

ANNUAL SALES, SUPPLY AND PRICE OF GAS

YEAR	GAS SALES RESIDENTIAL	GAS SALES COMMERCIAL	GAS SALES INDUSTRIAL AND ALL OTHER	GAS SALES TOTAL SALES	GAS SUPPLY	ANNUAL SUPPLY DEFICIT	AVERAGE GAS PRICE RESIDENTIAL	AVERAGE GAS PRICE COMMERCIAL AND ALL OTHER	AVERAGE GAS PRICE INDUSTRIAL	DEMAND WEIGHTED AVERAGE PRICE
	(BCF)				(BCF)	(BCF)	($/MMBTU IN $1981)			
1981	175.30	123.81	133.64	432.03	.00	.00	3.74	3.52	3.06	3.46
1982	167.70	117.91	114.77	400.46	.00	.00	4.30	4.08	3.62	4.04
1983	168.93	115.90	109.89	394.80	.00	.00	4.43	4.21	3.76	4.18
1984	174.93	115.86	107.64	398.43	.00	.00	4.37	4.15	3.70	4.12
1985	184.12	117.29	108.41	409.82	.00	.00	4.21	3.99	3.54	3.97
1986	188.44	117.18	110.96	416.59	.00	.00	4.22	4.00	3.55	3.98
1987	187.81	114.70	111.79	414.39	.00	.00	4.45	4.24	3.70	4.21
1988	184.34	110.67	110.02	405.02	.00	.00	4.87	4.65	4.19	4.62
1989	180.42	106.34	108.56	395.33	.00	.00	5.32	5.10	4.64	5.07
1990	179.21	103.05	106.01	388.27	.00	.00	5.65	5.43	4.97	5.41
1991	179.99	101.07	104.14	385.21	.00	.00	5.81	5.59	5.14	5.57
1992	183.70	100.30	103.44	387.44	.00	.00	5.80	5.58	5.13	5.57
1993	188.31	99.95	104.49	392.75	.00	.00	5.76	5.54	5.08	5.52
1994	191.01	98.91	105.94	395.06	.00	.00	5.84	5.62	5.16	5.60
1995	192.73	97.55	107.19	397.47	.00	.00	5.98	5.76	5.30	5.74
1996	193.20	95.71	108.36	397.27	.00	.00	6.21	5.99	5.53	5.97
1997	193.75	93.91	109.50	397.16	.00	.00	6.44	6.22	5.76	6.20
1998	194.36	92.17	110.23	396.76	.00	.00	6.67	6.45	5.99	6.43
1999	194.40	90.28	110.80	395.47	.00	.00	6.94	6.72	6.26	6.70
2000	194.20	88.34	111.31	393.85	.00	.00	7.24	7.02	6.55	6.99

ANNUAL RATES OF GROWTH

1981-1985	1.22%	-1.34%	-5.10%	-1.36%	.00%	.00%	3.02%	3.22%	3.69%	3.46%
1985-1990	-.54%	-2.56%	-.45%	-1.07%	.00%	.00%	6.07%	6.35%	7.05%	6.39%
1990-1995	1.46%	-1.09%	.22%	.47%	.00%	.00%	1.13%	1.17%	1.27%	1.20%
1995-2000	.15%	-1.96%	.76%	-.10%	.00%	.00%	3.89%	4.03%	4.33%	4.03%
1981-2000	.54%	-1.76%	-.96%	-.50%	.00%	.00%	3.54%	3.70%	4.09%	3.77%

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#37 -- ADDABBO - HEINZ SCENARIO                                                          FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR REGION: 8 -- North Central

                          1981   1982   1983   1984   1985   1986   1987   1988   1989   1990   1991   1992   1993   1994   1995
                          ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----


SPACE HEATING
SATURATION (%)
  EXISTING HOMES                69.80  69.56  69.42  69.49  69.45  69.11  68.47  67.63  66.74  65.92  65.34  64.87  64.34  63.76
  NEW HOMES                     69.59  63.18  64.65  68.15  68.79  65.30  58.35  50.85  46.13  44.54  46.19  48.56  48.63  47.67
  TOTAL HOUSING STOCK    70.82  69.79  69.30  69.22  69.44  69.43  68.99  68.14  67.09  66.08  65.31  64.80  64.41  63.89  63.30


WATER HEATING
SATURATION (%)
  EXISTING HOMES                63.94  63.44  63.79  64.63  64.82  64.82  62.50  60.99  59.71  58.87  58.59  58.49  58.05  57.45
  NEW HOMES                     68.67  62.65  64.12  67.52  68.08  64.85  58.17  51.06  46.58  45.01  46.60  48.89  48.97  48.08
  TOTAL HOUSING STOCK    66.98  64.13  63.40  63.81  64.75  64.93  64.85  62.44  60.67  59.29  58.47  58.25  58.22  57.79  57.18


COOKING
SATURATION (%)
  EXISTING HOMES                21.38  21.47  22.07  23.05  23.95  24.00  24.03  23.73  23.75  23.70  23.86  24.01  24.01  23.83
  NEW HOMES                     20.78  27.51  29.73  33.82  36.79  34.30  32.79  28.92  28.39  26.86  27.06  27.16  26.52  24.90
  TOTAL HOUSING STOCK    21.77  21.69  21.72  22.39  23.50  24.36  24.33  24.31  23.89  23.90  23.79  23.95  24.10  24.08  23.86


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES                 4.75   4.94   5.33   5.86   6.34   6.49   6.60   6.66   6.84   7.05   7.32   7.60   7.78   7.87
  NEW HOMES                     11.49  11.44  12.39  14.00  15.67  15.19  16.03  15.35  16.14  15.52  15.46  15.18  14.88  14.10
  TOTAL HOUSING STODR     5.00   5.03   5.21   5.63   6.20   6.64   6.77   6.90   6.94   7.13   7.29   7.56   7.82   7.98   8.05


RESIDENTIAL
CUSTOMERS                16.27  16.53  16.99  17.65  18.45  18.98  19.30  19.53  19.68  19.91  20.12  20.45  20.82  21.12  21.37

HOUSEHOLDS               25097  25922  26776  27662  28579  29226  29889  30569  31264  31976  32587  33210  33846  34494  35155
(HUNDRED-THOUSANDS)
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#37 -- ADDABBO - HEINZ SCENARIO                                                        FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR REGION: 8 -- North Central

                            1996   1997   1998   1999   2000
                            ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----


SPACE HEATING
SATURATION (%)
  EXISTING HOMES           63.10  62.40  61.67  60.89  60.06
  NEW HOMES                45.54  43.56  41.73  39.47  37.13
  TOTAL HOUSING STOCK      62.59  61.86  61.10  60.27  59.40


WATER HEATING
SATURATION (%)
  EXISTING HOMES           56.61  55.77  54.92  53.98  53.00
  NEW HOMES                46.05  44.16  42.41  40.24  37.98
  TOTAL HOUSING STOCK      56.31  55.43  54.56  53.59  52.57


COOKING
SATURATION (%)
  EXISTING HOMES           23.62  23.38  23.13  22.80  22.42
  NEW HOMES                23.52  22.20  21.00  19.54  18.10
  TOTAL HOUSING STOCK      23.62  23.35  23.07  22.70  22.30


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES            7.93   7.97   8.01   8.01   7.99
  NEW HOMES                13.76  13.39  13.06  12.57  12.05
  TOTAL HOUSING STODR       8.09   8.12   8.15   8.14   8.10


RESIDENTIAL
CUSTOMERS                  21.59  21.79  22.00  22.17  22.32

HOUSEHOLDS                 35829  36517  37218  37934  38663
(HUNDRED-THOUSANDS)

AVERAGE ANNUAL GROWTH RATE OF RESIDENTIAL CUSTOMERS, 1981-2000:   1.68%
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#37 -- ADDABBO - HEINZ SCENARIO                                                                     FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR REGION: 9 -- West

                                                  ANNUAL SALES, SUPPLY AND PRICE OF GAS

                              GAS SALES                                                                 AVERAGE GAS PRICE
              ----------------------------------------------------                          ----------------------------------------     DEMAND
                                           INDUSTRIAL                            ANNUAL                   COMMERCIAL                     WEIGHTED
                                              AND         TOTAL        GAS       SUPPLY                      AND                         AVERAGE
 YEAR    RESIDENTIAL  COMMERCIAL  ALL OTHER    SALES       SUPPLY    DEFICIT    RESIDENTIAL  ALL OTHER    INDUSTRIAL     PRICE
 ----    ----------  ----------  ----------  ----------  ----------  ----------  ----------  ----------  ----------  ----------
         -------------------( BCF )-------------------   ( BCF )    ( BCF )    ---------------( $/MMBTU IN $1981 )---------------
 1981      550.95      277.60      439.94     1268.48        .00        .00        3.62        4.12        3.80        3.79
 1982      519.60      269.43      385.46     1174.50        .00        .00        4.19        4.68        4.36        4.35
 1983      521.35      268.75      370.51     1160.61        .00        .00        4.32        4.81        4.49        4.48
 1984      544.66      271.83      364.30     1180.79        .00        .00        4.26        4.75        4.43        4.42
 1985      574.28      278.11      366.02     1218.40        .00        .00        4.10        4.59        4.27        4.26
 1986      587.73      280.82      372.58     1241.13        .00        .00        4.11        4.60        4.29        4.27
 1987      588.48      278.85      375.72     1243.05        .00        .00        4.33        4.83        4.52        4.50
 1988      577.56      273.12      373.49     1224.17        .00        .00        4.74        5.24        4.93        4.91
 1989      569.65      266.79      367.81     1204.25        .00        .00        5.19        5.69        5.38        5.36
 1990      568.77      262.52      360.76     1192.05        .00        .00        5.52        6.02        5.71        5.69
 1991      577.25      260.85      355.29     1193.39        .00        .00        5.68        6.19        5.87        5.85
 1992      594.99      261.91      354.00     1210.89        .00        .00        5.67        6.18        5.86        5.84
 1993      613.22      263.91      357.28     1234.42        .00        .00        5.62        6.13        5.81        5.79
 1994      625.10      264.35      360.94     1250.39        .00        .00        5.70        6.21        5.89        5.86
 1995      644.37      264.10      366.32     1274.79        .00        .00        5.84        6.35        6.03        6.00
 1996      648.68      262.71      369.68     1281.07        .00        .00        6.07        6.58        6.26        6.23
 1997      654.41      261.34      372.64     1288.40        .00        .00        6.30        6.81        6.49        6.46
 1998      660.84      259.98      374.03     1294.85        .00        .00        6.53        7.04        6.72        6.69
 1999      674.52      258.40      376.52     1309.44        .00        .00        6.80        7.31        6.99        6.96
 2000      678.09      256.62      377.54     1312.26        .00        .00        7.09        7.60        7.28        7.24


ANNUAL RATES OF GROWTH
----------------------

1981-1985    1.04%        .05%      -4.49%      -1.00%        .00%       .00%       3.18%       2.75%       2.98%       2.95%
1985-1990    -.19%      -1.15%       -.29%       -.44%        .00%       .00%       6.17%       5.59%       5.96%       5.95%
1990-1995    2.53%        .12%        .31%       1.35%        .00%       .00%       1.12%       1.05%       1.11%       1.07%
1995-2000    1.03%       -.57%        .61%        .58%        .00%       .00%       3.95%       3.67%       3.84%       3.84%
---------
1981-2000    1.10%       -.41%       -.80%        .18%        .00%       .00%       3.59%       3.28%       3.48%       3.46%
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037 -- ADDABBO - HEINZ SCENARIO                                                               FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR REGION: 9 -- West

                          1981   1982   1983   1984   1985   1986   1987   1988   1989   1990   1991   1992   1993   1994   1995
                          ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----


SPACE HEATING
SATURATION (%)
  EXISTING HOMES                74.69  74.93  75.46  76.17  76.58  76.55  76.26  75.88  75.61  75.50  75.58  75.74  75.75  75.69
  NEW HOMES                     87.39  64.00  85.39  86.66  87.38  86.11  83.41  80.15  77.82  76.94  77.81  78.97  78.99  78.54
  TOTAL HOUSING STOCK    75.78  75.16  75.38  75.83  76.56  76.91  76.85  76.48  76.01  75.60  75.54  75.64  75.83  75.84  75.77


WATER HEATING
SATURATION (%)
  EXISTING HOMES                76.77  76.41  77.34  78.03  79.21  78.34  76.73  75.12  74.07  73.60  73.95  74.41  74.34  74.05
  NEW HOMES                     87.06  84.65  85.24  86.46  87.19  86.00  83.46  80.41  78.25  77.41  78.23  79.32  79.35  78.93
  TOTAL HOUSING STOCK    80.43  77.16  76.72  77.63  79.11  79.46  78.50  76.94  75.20  74.20  73.70  74.07  74.55  74.40  74.10


COOKING
SATURATION (%)
  EXISTING HOMES                53.19  51.00  53.16  53.62  52.69  51.76  49.72  48.37  46.74  45.95  45.41  44.13  42.66  44.03
  NEW HOMES                     26.94  25.08  31.03  34.95  33.92  33.00  27.97  26.27  23.26  23.07  23.06  20.40  17.59  23.11
  TOTAL HOUSING STOCK    54.07  52.21  50.83  52.37  52.92  52.11  51.17  49.05  47.60  46.01  45.32  44.00  43.49  41.98  43.46


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES                12.27  12.13  12.09  13.52  13.62  13.51  13.00  12.88  12.54  12.55  12.60  12.58  12.31  12.83
  NEW HOMES                     13.13  13.02  16.38  17.10  16.30  16.74  15.22  15.89  14.77  15.05  14.73  12.00   9.84  14.60
  TOTAL HOUSING STODR    13.02  12.30  12.16  13.02  13.66  13.70  13.61  13.14  12.90  12.61  12.62  12.73  12.56  12.24  12.89


RESIDENTIAL
CUSTOMERS                77.18  77.26  78.04  82.20  85.51  87.20  88.50  88.82  89.43  90.11  91.19  92.71  93.94  94.83  97.19

HOUSEHOLDS              101705 104582 107543 110592 113731 116214 118753 121349 124003 126710 128967 131250 133591 135968 138389
(HUNDRED-THOUSANDS)
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#37 -- ADDABBO - HEINZ SCENARIO                                          FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR REGION: 9 -- West

                          1996   1997   1998   1999   2000
                          ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----


SPACE HEATING
SATURATION (%)
  EXISTING HOMES         75.51  75.33  75.13  74.88  74.59
  NEW HOMES              77.51  76.51  75.55  74.31  72.94
  TOTAL HOUSING STOCK    75.57  75.36  75.14  74.86  74.54


WATER HEATING
SATURATION (%)
  EXISTING HOMES         73.44  72.85  72.29  71.63  70.93
  NEW HOMES              77.97  77.04  76.15  74.99  73.72
  TOTAL HOUSING STOCK    73.56  72.97  72.40  71.72  71.01


COOKING
SATURATION (%)
  EXISTING HOMES         42.33  40.82  39.34  40.17  38.49
  NEW HOMES              19.09  16.32  13.96  17.91  14.50
  TOTAL HOUSING STOCK    41.70  40.15  38.64  39.56  37.84


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES         12.49  12.15  11.79  12.10  11.72
  NEW HOMES              11.95  10.09   8.46  12.71  10.11
  TOTAL HOUSING STODR    12.47  12.09  11.70  12.12  11.68


RESIDENTIAL
CUSTOMERS                97.67  98.26  98.87 100.70 101.16

HOUSEHOLDS              140855 143367 145925 148532 151188
(HUNDRED-THOUSANDS)

AVERAGE ANNUAL GROWTH RATE OF RESIDENTIAL CUSTOMERS, 1981-2000:   1.43%
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#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

GAS DEMAND MODEL FOR REGION:10 -- Northwest

ANNUAL SALES, SUPPLY AND PRICE OF GAS

	GAS SALES						AVERAGE GAS PRICE			
YEAR	RESIDENTIAL	COMMERCIAL	INDUSTRIAL AND ALL OTHER	TOTAL SALES	GAS SUPPLY	ANNUAL SUPPLY DEFICIT	RESIDENTIAL	COMMERCIAL AND ALL OTHER	INDUSTRIAL	DEMAND WEIGHTED AVERAGE PRICE
	(BCF)				(BCF)	(BCF)	($/MMBTU IN $1981)			
1981	51.63	48.69	139.87	240.19	.00	.00	5.55	4.92	4.33	4.71
1982	49.85	46.87	124.30	221.02	.00	.00	6.11	5.48	4.89	5.29
1983	49.63	46.10	119.11	214.92	.00	.00	6.24	5.61	5.02	5.43
1984	50.29	46.03	116.62	212.94	.00	.00	6.18	5.55	4.96	5.38
1985	51.44	46.35	116.90	214.69	.00	.00	6.02	5.39	4.80	5.22
1986	51.71	46.26	119.13	217.10	.00	.00	6.03	5.40	4.81	5.23
1987	51.24	45.51	120.35	217.09	.00	.00	6.26	5.63	5.04	5.45
1988	50.27	44.23	120.24	214.75	.00	.00	6.67	6.04	5.45	5.86
1989	49.21	42.86	119.07	211.14	.00	.00	7.12	6.49	5.90	6.31
1990	48.56	41.79	117.60	207.96	.00	.00	7.45	6.82	6.23	6.63
1991	48.35	41.13	116.60	206.08	.00	.00	7.61	6.98	6.39	6.80
1992	48.69	40.88	117.38	206.96	.00	.00	7.69	6.97	6.38	6.79
1993	49.21	40.80	120.09	210.11	.00	.00	7.55	6.92	6.33	6.73
1994	49.41	40.50	122.93	212.85	.00	.00	7.63	7.00	6.41	6.81
1995	49.48	40.11	126.14	215.73	.00	.00	7.77	7.14	6.55	6.94
1996	49.32	39.57	128.84	217.73	.00	.00	8.00	7.37	6.78	7.17
1997	49.20	39.04	131.48	219.72	.00	.00	8.23	7.60	7.01	7.39
1998	49.10	38.53	134.02	221.65	.00	.00	8.46	7.83	7.24	7.62
1999	48.91	37.96	136.22	223.09	.00	.00	8.73	8.10	7.51	7.88
2000	48.69	37.37	138.13	224.19	.00	.00	9.02	8.39	7.80	8.17

ANNUAL RATES OF GROWTH

1981-1985	-.09%	-1.22%	-4.39%	-2.77%	.00%	.00%	2.05%	2.31%	2.62%	2.60%
1985-1990	-1.14%	-2.05%	.12%	-.63%	.00%	.00%	4.35%	4.82%	5.36%	4.92%
1990-1995	.37%	-.82%	1.41%	.74%	.00%	.00%	.84%	.92%	1.01%	.91%
1995-2000	-.32%	-1.41%	1.83%	.77%	.00%	.00%	3.02%	3.28%	3.56%	3.30%
1981-2000	-.31%	-1.30%	-.07%	-.36%	.00%	.00%	2.59%	2.85%	3.15%	2.94%

#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

GAS DEMAND MODEL FOR REGION:10 -- Northwest

	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
SPACE HEATING SATURATION (%)															
EXISTING HOMES		23.30	22.74	22.19	21.72	21.25	20.84	20.37	19.85	19.35	18.88	18.53	18.20	17.87	17.54
NEW HOMES		11.03	8.72	9.17	10.22	10.68	9.79	8.13	6.60	5.92	5.85	6.23	6.70	6.90	6.82
TOTAL HOUSING STOCK	23.57	22.80	22.16	21.65	21.24	20.90	20.48	19.97	19.43	18.91	18.52	18.18	17.88	17.56	17.23
WATER HEATING SATURATION (%)															
EXISTING HOMES		11.11	10.92	10.80	10.75	10.65	10.47	10.21	9.91	9.64	9.43	9.32	9.23	9.11	8.97
NEW HOMES		8.44	6.74	7.09	7.90	8.26	7.59	6.34	5.24	4.66	4.64	4.94	5.36	5.45	5.39
TOTAL HOUSING STOCK	11.54	11.00	10.74	10.65	10.63	10.57	10.38	10.08	9.75	9.48	9.30	9.19	9.12	9.00	8.87
COOKING SATURATION (%)															
EXISTING HOMES		4.14	4.07	4.11	4.16	4.17	4.14	4.14	4.08	4.02	4.01	4.07	4.14	4.19	4.22
NEW HOMES		3.06	3.52	3.80	4.21	4.10	3.94	4.11	3.71	3.41	3.44	3.91	4.30	4.71	4.87
TOTAL HOUSING STOCK	4.23	4.12	4.05	4.10	4.16	4.17	4.13	4.14	4.07	4.00	4.00	4.07	4.14	4.20	4.24
CLOTHES DRYING SATURATION (%)															
EXISTING HOMES		.99	.95	.95	.95	.94	.92	.90	.87	.85	.84	.85	.87	.88	.88
NEW HOMES		.52	.48	.53	.55	.53	.52	.64	.62	.60	.62	.74	.86	.96	1.04
TOTAL HOUSING STODR	1 04	.97	.93	.93	.94	.93	.90	.89	.86	.84	.83	.85	.87	.88	.89
RESIDENTIAL CUSTOMERS	6 90	6.99	7.12	7.29	7.48	7.61	7.71	7.80	7.87	7.95	8.02	8.13	8.24	8.34	8.44
HOUSEHOLDS (HUNDRED-THOUSANDS)	29·87	30454	31454	32486	33552	34332	35129	35946	36782	37638	38338	39051	39778	40520	41275

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037 -- ADDABBO - HEINZ SCENARIO                                                     FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR REGION:10 -- Northwest

                              1996   1997   1998   1999   2000
                              ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----


SPACE HEATING
SATURATION (%)
  EXISTING HOMES             17.19  16.85  16.52  16.18  15.84
  NEW HOMES                   6.53   6.27   6.04   5.73   5.41
  TOTAL HOUSING STOCK        16.89  16.55  16.22  15.88  15.55


WATER HEATING
SATURATION (%)
  EXISTING HOMES              8.80   8.64   8.48   8.31   8.13
  NEW HOMES                   5.16   4.96   4.78   4.54   4.29
  TOTAL HOUSING STOCK         8.70   8.54   8.37   8.20   8.02


COOKING
SATURATION (%)
  EXISTING HOMES              4.24   4.25   4.26   4.24   4.21
  NEW HOMES                   4.89   4.87   4.82   4.51   4.19
  TOTAL HOUSING STOCK         4.26   4.27   4.28   4.25   4.21


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES               .88    .89    .89    .89    .88
  NEW HOMES                   1.10   1.14   1.17   1.11   1.05
  TOTAL HOUSING STODR          .89    .89    .90    .89    .88


RESIDENTIAL
CUSTOMERS                     8.54   8.63   8.72   8.81   8.89

HOUSEHOLDS                   42045  42829  43629  44444  45275
(HUNDRED-THOUSANDS)

AVERAGE ANNUAL GROWTH RATE OF RESIDENTIAL CUSTOMERS, 1981-2000:    1.34%
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#37 -- ADDABBO - HEINZ SCENARIO                                                       FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR ALABAMA

                                            ANNUAL SALES, SUPPLY AND PRICE OF GAS

                       GAS SALES                                                           AVERAGE GAS PRICE
          -------------------------------------------                         --------------------------------     DEMAND
                                  INDUSTRIAL                           ANNUAL              COMMERCIAL               WEIGHTED
                                     AND        TOTAL        GAS       SUPPLY                 AND                   AVERAGE
YEAR  RESIDENTIAL COMMERCIAL     ALL OTHER      SALES      SUPPLY     DEFICIT    RESIDENTIAL ALL OTHER  INDUSTRIAL    PRICE
----  ----------  ----------     ----------  ----------  ----------  ----------  ----------  ----------  ----------  ----------
      -------------------( BCF )-------------------     ( BCF )     ( BCF )     ---------------($/MMBTU IN $1981)--------------
1981     54.26      23.35         144.41      222.01         .00         .00        4.51        3.62        3.28        3.62
1982     51.34      22.21         128.37      201.92         .00         .00        5.07        4.18        3.84        4.19
1983     50.75      21.80         123.49      196.03         .00         .00        5.20        4.31        3.97        4.33
1984     51.51      21.71         121.12      194.34         .00         .00        5.14        4.25        3.91        4.27
1985     52.92      21.91         121.41      196.24         .00         .00        4.98        4.09        3.75        4.12
1986     53.47      21.84         123.79      199.10         .00         .00        4.99        4.10        3.76        4.13
1987     52.91      21.37         125.24      199.51         .00         .00        5.22        4.33        3.99        4.35
1988     51.77      20.59         125.28      197.63         .00         .00        5.63        4.74        4.40        4.76
1989     50.60      19.76         124.17      194.53         .00         .00        6.08        5.19        4.85        5.20
1990     50.07      19.13         122.76      191.95         .00         .00        6.41        5.52        5.18        5.53
1991     50.10      18.74         121.51      190.35         .00         .00        6.57        5.68        5.34        5.70
1992     50.94      18.58         121.83      191.34         .00         .00        6.56        5.67        5.33        5.69
1993     51.77      18.49         123.62      193.88         .00         .00        6.51        5.62        5.28        5.64
1994     52.47      18.28         125.96      196.71         .00         .00        6.59        5.70        5.36        5.72
1995     52.63      18.02         128.34      198.99         .00         .00        6.73        5.84        5.50        5.86
1996     52.83      17.67         130.50      201.00         .00         .00        6.96        6.07        5.73        6.08
1997     52.79      17.33         132.42      202.54         .00         .00        7.19        6.30        5.96        6.31
1998     53.06      17.00         134.20      204.27         .00         .00        7.42        6.53        6.19        6.54
1999     52.95      16.65         135.80      205.40         .00         .00        7.69        6.80        6.46        6.80
2000     53.05      16.30         137.31      206.66         .00         .00        7.98        7.09        6.75        7.09


ANNUAL RATES OF GROWTH
----------------------

1981-1985    -.62%      -1.58%         -4.25%      -3.04%        .00%        .00%       2.51%       3.10%       3.40%       3.31%
1985-1990   -1.10%      -2.67%           .22%       -.44%        .00%        .00%       5.18%       6.18%       6.67%       6.08%
1990-1995    1.00%      -1.19%           .89%        .72%        .00%        .00%        .98%       1.13%       1.21%       1.14%
1995-2000     .16%      -1.99%          1.36%        .76%        .00%        .00%       3.47%       3.96%       4.18%       3.91%
---------
1981-2000    -.12%      -1.87%          -.26%       -.38%        .00%        .00%       3.05%       3.60%       3.87%       3.61%
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037 -- ADDABBO - HEINZ SCENARIO                                                                          FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR ALABAMA

                              1981    1982    1983    1984    1985    1986    1987    1988    1989    1990    1991    1992    1993    1994    1995
                              ----    ----    ----    ----    ----    ----    ----    ----    ----    ----    ----    ----    ----    ----    ----


SPACE HEATING
SATURATION (%)
  EXISTING HOMES                     47.84   47.06   46.48   45.91   45.30   44.83   44.13   43.35   42.59   41.92   41.42   41.00   40.54   40.08
  NEW HOMES                          24.52   20.73   22.93   26.05   20.76   27.05   23.05   19.40   17.63   17.54   19.09   21.17   21.96   22.12
  TOTAL HOUSING STOCK         48.42  47.15   46.20   45.71   45.35   44.90   44.43   43.62   42.77   41.90   41.30   40.93   40.56   40.13   39.69


WATER HEATING
SATURATION (%)
  EXISTING HOMES                     35.20   34.51   34.29   34.34   34.06   33.46   32.56   31.61   30.84   30.34   30.05   29.94   29.60   29.23
  NEW HOMES                          18.24   15.42   17.16   20.32   21.89   20.56   17.44   14.65   13.31   13.27   14.40   16.12   16.76   16.91
  TOTAL HOUSING STOCK         36.61  34.78   33.94   33.79   33.92   33.77   33.14   32.19   31.20   30.42   29.92   29.71   29.63   29.31   28.96


COOKING
SATURATION (%)
  EXISTING HOMES                     23.44   23.07   23.26   23.43   23.45   23.03   22.69   22.24   21.93   21.63   21.76   21.41   21.62   21.38
  NEW HOMES                          16.86   15.30   16.73   17.80   18.45   16.70   16.00   14.81   14.26   13.64   14.76   13.47   15.63   12.60
  TOTAL HOUSING STOCK         23.72  23.22   22.84   23.07   23.26   23.33   22.88   22.53   22.06   21.74   21.45   21.61   21.24   21.40   20.86


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES                      1.83    1.95    2.15    2.36    2.52    2.59    2.63    2.67    2.74    2.82    2.97    3.04    3.17    3.18
  NEW HOMES                           6.67    6.41    6.79    6.60    6.81    6.23    6.61    6.61    6.73    6.41    6.95    5.72    6.72    5.23
  TOTAL HOUSING STOOD          1.90   1.97    2.08    2.29    2.45    2.63    2.67    2.73    2.77    2.84    2.90    3.05    3.14    3.25    3.23


RESIDENTIAL
CUSTOMERS                     63.08  63.62   63.99   65.06   66.33   67.09   67.27   67.27   67.12   67.18   67.29   67.87   68.22   68.85   68.89

HOUSEHOLDS                   136796 139545  142350  145211  148131  150387  152517  154759  157034  159342  161315  163318  165366  167296  169469
(TEN-THOUSANDS)
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#37 -- ADDABBO - HEINZ SCENARIO                                                                          FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR ALABAMA

                          1996   1997   1998   1999   2000
                          ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----

SPACE HEATING
SATURATION (%)
  EXISTING HOMES         39.59  39.10  38.62  38.12  37.62
  NEW HOMES              21.57  21.10  20.71  20.04  19.30
  TOTAL HOUSING STOCK    39.19  38.70  38.22  37.72  37.21


WATER HEATING
SATURATION (%)
  EXISTING HOMES         28.77  28.32  27.88  27.42  26.94
  NEW HOMES              16.50  16.15  15.87  15.36  14.81
  TOTAL HOUSING STOCK    28.50  28.05  27.62  27.15  26.67


COOKING
SATURATION (%)
  EXISTING HOMES         21.08  20.53  20.53  19.96  19.84
  NEW HOMES              13.64  11.73  12.54  10.65  11.03
  TOTAL HOUSING STOCK    20.91  20.34  20.36  19.75  19.65


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES          3.26   3.25   3.32   3.30   3.34
  NEW HOMES               6.07   4.97   5.71   4.62   5.12
  TOTAL HOUSING STODR     3.32   3.29   3.38   3.33   3.38


RESIDENTIAL
CUSTOMERS                69.29  69.27  69.66  69.59  69.85

HOUSEHOLDS              171571 173698 175852 178033 180240
(TEN-THOUSANDS)

AVERAGE ANNUAL GROWTH RATE OF RESIDENTIAL CUSTOMERS, 1981-2000:     .47%
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#37 -- ADDABBO - HEINZ SCENARIO                                                                   FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR ARIZONA

                                            ANNUAL SALES, SUPPLY AND PRICE OF GAS

                           GAS SALES                                                    AVERAGE GAS PRICE
        -----------------------------------------------                         -----------------------------------     DEMAND
                                INDUSTRIAL                            ANNUAL                COMMERCIAL                 WEIGHTED
                                    AND        TOTAL       GAS        SUPPLY                   AND                    AVERAGE
 YEAR   RESIDENTIAL COMMERCIAL  ALL OTHER      SALES      SUPPLY      DEFICIT   RESIDENTIAL ALL OTHER    INDUSTRIAL     PRICE
 ----   ----------  ----------  ----------  ----------  ----------  ----------  ----------  ----------  ----------  ----------
        -------------------(  BCF  )-------------------  (  BCF  )   (  BCF  )  --------------($/MMBTU IN $1981)---------------
 1981       27.65       27.90       46.29      101.83         .00         .00        4.31        3.40        2.73        3.34
 1982       26.73       26.72       40.34       93.78         .00         .00        4.87        3.96        3.29        3.93
 1983       27.17       26.43       38.36       91.96         .00         .00        5.00        4.09        3.42        4.08
 1984       28.62       26.58       37.41       92.61         .00         .00        4.94        4.03        3.36        4.04
 1985       30.39       27.08       37.47       94.94         .00         .00        4.78        3.87        3.20        3.90
 1986       31.25       27.18       38.06       96.50         .00         .00        4.79        3.88        3.21        3.91
 1987       31.54       26.74       38.21       96.48         .00         .00        5.02        4.11        3.44        4.14
 1988       31.22       25.87       37.69       94.79         .00         .00        5.43        4.52        3.85        4.55
 1989       30.98       24.96       36.80       92.74         .00         .00        5.88        4.97        4.30        5.01
 1990       31.02       24.28       35.82       91.12         .00         .00        6.21        5.30        4.63        5.35
 1991       31.49       23.89       35.64       90.43         .00         .00        6.37        5.46        4.79        5.52
 1992       32.42       23.81       34.71       90.94         .00         .00        6.36        5.45        4.78        5.52
 1993       33.38       23.82       34.88       92.08         .00         .00        6.31        5.40        4.73        5.48
 1994       34.83       23.66       35.14       92.84         .00         .00        6.39        5.48        4.81        5.56
 1995       35.05       23.44       35.56       94.05         .00         .00        6.53        5.62        4.95        5.71
 1996       35.31       23.10       35.79       94.20         .00         .00        6.76        5.85        5.18        5.94
 1997       35.62       22.76       36.08       94.37         .00         .00        6.99        6.08        5.41        6.17
 1998       35.94       22.42       36.06       94.42         .00         .00        7.22        6.31        5.64        6.40
 1999       36.61       22.06       36.22       94.88         .00         .00        7.49        6.58        5.91        6.68
 2000       36.73       21.68       36.26       94.67         .00         .00        7.78        6.87        6.20        6.97


ANNUAL RATES OF GROWTH
----------------------

1981-1985    2.40%       -.74%      -5.15%      -1.74%        .00%        .00%       2.62%       3.29%       4.05%       3.91%
1985-1990     .41%      -2.16%       -.89%       -.82%        .00%        .00%       5.37%       6.49%       7.67%       6.53%
1990-1995    2.48%       -.70%       -.15%        .64%        .00%        .00%       1.01%       1.18%       1.35%       1.31%
1995-2000     .94%      -1.55%        .39%        .13%        .00%        .00%       3.57%       4.10%       4.61%       4.07%
---------
1981-2000    1.51%      -1.32%      -1.28%       -.38%        .00%        .00%       3.16%       3.77%       4.41%       3.94%
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#37 -- ADDABBO - HEINZ SCENARIO                                                    FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR ARIZONA

                           1981    1982    1983    1984    1985    1986    1987    1988    1989    1990    1991    1992    1993    1994    1995
                           ----    ----    ----    ----    ----    ----    ----    ----    ----    ----    ----    ----    ----    ----    ----


SPACE HEATING
SATURATION (%)
  EXISTING HOMES                  55.93   56.59   57.19   57.91   58.53   58.76   58.70   58.44   58.08   57.74   57.54   57.43   57.28   57.08
  NEW HOMES                       74.11   67.74   68.65   71.31   72.19   69.19   62.98   56.20   51.80   50.49   52.01   54.18   54.21   53.30
  TOTAL HOUSING STOCK     56.69   56.77   57.11   57.72   58.53   59.00   59.11   58.85   58.36   57.87   57.52   57.37   57.33   57.18   56.96


WATER HEATING
SATURATION (%)
  EXISTING HOMES                  57.93   58.02   58.73   59.81   60.37   59.99   59.03   57.90   57.00   56.46   56.38   56.47   56.25   55.89
  NEW HOMES                       73.53   67.43   68.36   70.96   71.83   68.94   62.98   56.48   52.27   51.02   52.49   54.60   54.64   53.78
  TOTAL HOUSING STOCK     60.52   58.65   58.45   59.18   60.32   60.76   60.30   59.16   57.85   56.83   56.29   56.26   56.41   56.20   55.82


COOKING
SATURATION (%)
  EXISTING HOMES                  37.19   36.08   36.80   36.94   36.28   35.72   34.42   33.56   32.48   31.94   31.55   30.64   29.60   30.53
  NEW HOMES                       19.80   19.06   23.96   26.49   25.48   24.94   21.06   19.95   17.65   17.60   17.59   15.41   13.21   17.73
  TOTAL HOUSING STOCK     38.24   36.38   35.29   36.21   36.45   35.91   35.35   33.96   33.10   31.98   31.51   31.12   30.18   29.11   30.15


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES                   5.73    5.83    6.33    6.80    7.08    7.18    7.11    7.11    7.11    7.25    7.42    7.45    7.38    7.78
  NEW HOMES                       10.06   10.12   12.59   13.27   12.71   13.07   12.14   12.66   11.98   12.25   12.11   10.31    8.69   12.29
  TOTAL HOUSING STODR      6.06    5.93    6.03    6.62    7.10    7.27    7.38    7.28    7.30    7.28    7.40    7.56    7.54    7.42    7.92


RESIDENTIAL
CUSTOMERS                 55.14   56.09   57.87   60.91   64.81   65.70   67.02   67.60   68.26   68.87   69.74   70.94   71.96   72.74   74.60

HOUSEHOLDS                99327  103092  106999  111054  115263  118145  121098  124126  127229  130410  133135  135918  138758  141658  144619
(TEN-THOUSANDS)
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#37 -- ADDABBO - HEINZ SCENARIO                                                   FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR ARIZONA

                        1996   1997   1998   1999   2000
                        ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----


SPACE HEATING
SATURATION (%)
  EXISTING HOMES       56.79  56.45  56.08  55.64  55.15
  NEW HOMES            51.31  49.43  47.66  45.45  43.12
  TOTAL HOUSING STOCK  56.62  56.24  55.83  55.33  54.78



WATER HEATING
SATURATION (%)
  EXISTING HOMES       55.29  54.69  54.07  53.35  52.58
  NEW HOMES            51.86  50.06  48.36  46.23  43.99
  TOTAL HOUSING STOCK  55.19  54.55  53.89  53.14  52.32



COOKING
SATURATION (%)
  EXISTING HOMES       29.38  28.33  27.29  27.86  26.70
  NEW HOMES            14.54  12.48  10.59  13.82  11.14
  TOTAL HOUSING STOCK  28.93  27.85  26.78  27.43  26.23



CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES        7.68   7.56   7.42   7.69   7.55
  NEW HOMES            10.42   9.07   7.84  11.19   9.28
  TOTAL HOUSING STODR   7.76   7.61   7.43   7.80   7.60



RESIDENTIAL
CUSTOMERS              75.08  75.59  76.08  77.51  77.76

HOUSEHOLDS            147642 150727 153877 157093 160377
(TEN-THOUSANDS)

AVERAGE ANNUAL GROWTH RATE OF RESIDENTIAL CUSTOMERS, 1981-2000:   1.83%
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#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

GAS DEMAND MODEL FOR ARKANSAS

ANNUAL SALES, SUPPLY AND PRICE OF GAS

	GAS SALES						AVERAGE GAS PRICE			
YEAR	RESIDENTIAL	COMMERCIAL	INDUSTRIAL AND ALL OTHER	TOTAL SALES	GAS SUPPLY	ANNUAL SUPPLY DEFICIT	RESIDENTIAL	COMMERCIAL AND ALL OTHER	INDUSTRIAL	DEMAND WEIGHTED AVERAGE PRICE
	(BCF)				(BCF)	(BCF)	($/MMBTU IN $1981)			
1981	42.31	28.03	127.42	197.76	.00	.00	2.80	2.51	2.40	2.50
1982	39.41	26.18	115.99	181.59	.00	.00	3.36	3.07	2.96	3.06
1983	39.57	25.56	109.97	175.10	.00	.00	3.49	3.20	3.09	3.20
1984	41.27	25.44	106.35	173.06	.00	.00	3.43	3.14	3.03	3.14
1985	43.93	25.72	105.64	175.30	.00	.00	3.27	2.98	2.87	2.99
1986	45.39	25.59	106.85	177.83	.00	.00	3.28	2.99	2.88	3.00
1987	45.35	24.80	107.03	177.19	.00	.00	3.51	3.22	3.11	3.23
1988	44.41	23.59	105.68	173.68	.00	.00	3.92	3.63	3.52	3.64
1989	43.54	22.36	103.34	169.27	.00	.00	4.37	4.08	3.97	4.09
1990	43.45	21.48	100.79	165.71	.00	.00	4.70	4.41	4.30	4.42
1991	44.15	20.93	98.62	163.71	.00	.00	4.86	4.57	4.46	4.58
1992	45.77	20.69	97.32	163.78	.00	.00	4.85	4.56	4.45	4.58
1993	47.42	20.52	97.07	165.01	.00	.00	4.80	4.51	4.40	4.53
1994	48.95	20.19	97.82	166.96	.00	.00	4.88	4.59	4.48	4.61
1995	49.71	19.77	98.41	167.89	.00	.00	5.02	4.73	4.62	4.75
1996	50.52	19.25	99.48	169.25	.00	.00	5.25	4.96	4.85	4.98
1997	50.94	18.75	100.18	169.86	.00	.00	5.48	5.19	5.08	5.21
1998	51.83	18.27	101.01	171.10	.00	.00	5.71	5.42	5.31	5.44
1999	52.15	17.76	101.63	171.53	.00	.00	5.98	5.69	5.58	5.71
2000	52.77	17.25	102.45	172.47	.00	.00	6.27	5.98	5.87	6.00

ANNUAL RATES OF GROWTH

1981-1985	.95%	-2.13%	-4.58%	-2.97%	.00%	.00%	3.96%	4.38%	4.57%	4.53%
1985-1990	-.22%	-3.54%	-.94%	-1.12%	.00%	.00%	7.53%	8.15%	8.42%	8.15%
1990-1995	2.73%	-1.64%	-.48%	.26%	.00%	.00%	1.33%	1.41%	1.45%	1.46%
1995-2000	1.20%	-2.69%	.81%	.54%	.00%	.00%	4.55%	4.80%	4.91%	4.79%
1981-2000	1.17%	-2.52%	-1.14%	-.72%	.00%	.00%	4.33%	4.68%	4.82%	4.72%

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#37 -- ADDABBO - HEINZ SCENARIO                                                          FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR ARKANSAS

                         1981   1982   1983   1984   1985   1986   1987   1988   1989   1990   1991   1992   1993   1994   1995
                         ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----


SPACE HEATING
SATURATION (%)
  EXISTING HOMES                55.27  55.84  56.64  57.66  58.45  58.83  58.91  58.86  58.81  58.85  59.05  59.35  59.55  59.68
  NEW HOMES                     81.81  77.61  80.31  84.46  85.55  83.09  77.32  70.44  65.95  64.82  67.04  69.92  70.36  69.76
  TOTAL HOUSING STOCK    56.20  56.01  56.45  57.30  58.41  59.15  59.45  59.39  59.16  59.00  58.99  59.24  59.60  59.80  59.92


WATER HEATING
SATURATION (%)
  EXISTING HOMES                50.82  51.13  52.43  54.32  55.27  55.08  54.24  53.30  52.72  52.60  53.02  53.63  53.83  53.85
  NEW HOMES                     78.10  73.66  76.67  81.31  82.56  79.86  73.66  66.51  61.97  60.87  63.15  66.13  66.61  66.04
  TOTAL HOUSING STOCK    53.52  51.58  51.76  53.11  55.08  55.97  55.72  54.74  53.44  52.96  52.79  53.25  53.92  54.13  54.14


COOKING
SATURATION (%)
  EXISTING HOMES                40.47  40.31  41.04  42.14  42.49  41.91  40.92  39.93  39.16  38.78  38.83  38.13  38.60  37.50
  NEW HOMES                     34.24  34.45  37.37  41.24  42.47  39.90  35.94  32.38  29.97  29.34  30.13  27.23  30.09  25.58
  TOTAL HOUSING STOCK    41.51  40.30  40.15  40.94  42.12  42.49  41.86  40.00  39.74  38.92  38.56  38.63  37.87  38.39  37.22


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES                 7.61   7.77   8.29   8.97   9.32   9.33   9.20   9.09   9.08   9.23   9.52   9.62   9.94   9.84
  NEW HOMES                     14.45  15.24  16.09  16.80  17.25  16.99  16.88  16.87  16.62  16.68  16.87  13.99  16.26  13.13
  TOTAL HOUSING STODR     8.05   7.80   7.98   8.51   9.19   9.53   9.53   9.40   9.29   9.28   9.40   9.70   9.73  10.09   9.92


RESIDENTIAL
CUSTOMERS                44.94  44.94  45.91  47.59  49.67  51.05  51.70  51.92  52.05  52.38  52.95  53.93  54.70  55.80  56.17

HOUSEHOLDS               83110  84647  86213  87808  89432  90872  92335  93822  95333  96867  98224  99599 100993 102407 103841
(TEN-THOUSANDS)
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#37 -- ADDABBO - HEINZ SCENARIO                                               FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR ARKANSAS

                          1996   1997   1998   1999   2000
                          ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----

SPACE HEATING
SATURATION (%)
  EXISTING HOMES         59.71  59.70  59.67  59.56  59.41
  NEW HOMES              67.91  66.17  64.55  62.41  60.09
  TOTAL HOUSING STOCK    59.90  59.86  59.78  59.63  59.42


WATER HEATING
SATURATION (%)
  EXISTING HOMES         53.59  53.32  53.05  52.67  52.24
  NEW HOMES              64.17  62.44  60.84  58.73  56.47
  TOTAL HOUSING STOCK    53.84  53.54  53.23  52.81  52.34


COOKING
SATURATION (%)
  EXISTING HOMES         37.52  36.38  36.39  35.24  35.01
  NEW HOMES              27.03  22.83  24.30  20.45  21.08
  TOTAL HOUSING STOCK    37.27  36.06  36.11  34.89  34.68


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES          9.96   9.80   9.93   9.75   9.79
  NEW HOMES              15.08  12.39  14.32  11.79  13.17
  TOTAL HOUSING STODR    10.08   9.86  10.03   9.79   9.87


RESIDENTIAL
CUSTOMERS                56.91  57.12  57.84  57.97  58.49

HOUSEHOLDS              105294 106769 108263 109779 111316
(TEN-THOUSANDS)

AVERAGE ANNUAL GROWTH RATE OF RESIDENTIAL CUSTOMERS, 1981-2000:   1.40%
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#37 -- ADDABBO - HEINZ SCENARIO                                                                FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR CALIF.

                                                     ANNUAL SALES, SUPPLY AND PRICE OF GAS

                                  GAS SALES                                                                AVERAGE GAS PRICE
          ----------------------------------------------                                 ---------------------------------          DEMAND
                                       INDUSTRIAL                                   ANNUAL                   COMMERCIAL                        WEIGHTED
                                          AND           TOTAL          GAS          SUPPLY                      AND                            AVERAGE
YEAR   RESIDENTIAL  COMMERCIAL       ALL OTHER         SALES        SUPPLY         DEFICIT     RESIDENTIAL    ALL OTHER       INDUSTRIAL      PRICE
----   ----------   ----------      ----------      ----------    ----------     ----------    ----------     ----------      ----------    ----------
       -------------------------(  BCF  )-------------------------   (  BCF  )     (  BCF  )     ---------------($/MMBTU  IN $1981)-------------------
1981      509.39       241.79          386.38         1137.55           .00            .00          3.56           4.19            3.94          3.82
1982      479.70       235.10          338.76         1053.56           .00            .00          4.12           4.75            4.50          4.38
1983      481.03       234.81          326.06         1041.90           .00            .00          4.25           4.88            4.63          4.51
1984      502.64       237.75          320.89         1061.28           .00            .00          4.19           4.82            4.57          4.45
1985      530.16       243.44          322.52         1096.12           .00            .00          4.03           4.66            4.41          4.28
1986      542.76       246.06          328.37         1117.20           .00            .00          4.04           4.67            4.42          4.29
1987      543.47       244.65          331.32         1119.45           .00            .00          4.27           4.90            4.65          4.52
1988      533.35       240.00          329.65         1103.00           .00            .00          4.68           5.31            5.06          4.93
1989      526.11       234.83          324.97         1085.91           .00            .00          5.13           5.76            5.51          5.38
1990      525.52       231.42          319.02         1075.97           .00            .00          5.46           6.09            5.84          5.71
1991      533.69       230.25          314.43         1078.37           .00            .00          5.62           6.25            6.00          5.87
1992      550.53       231.44          313.49         1095.46           .00            .00          5.61           6.24            5.99          5.85
1993      567.84       233.45          316.56         1117.84           .00            .00          5.56           6.19            5.94          5.80
1994      579.20       234.11          319.88         1133.19           .00            .00          5.64           6.27            6.02          5.88
1995      597.44       234.15          324.77         1156.36           .00            .00          5.78           6.41            6.16          6.01
1996      601.75       233.21          327.83         1162.79           .00            .00          6.01           6.64            6.39          6.24
1997      607.40       232.29          330.54         1170.22           .00            .00          6.24           6.87            6.62          6.47
1998      613.72       231.36          331.83         1176.91           .00            .00          6.47           7.10            6.85          6.70
1999      626.82       230.25          334.12         1191.19           .00            .00          6.74           7.37            7.12          6.97
2000      630.51       228.97          335.07         1194.55           .00            .00          7.03           7.66            7.41          7.26


ANNUAL RATES OF GROWTH
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1981-1985     1.00%          .17%          -4.42%           -.92%          .00%           .00%         3.15%          2.69%           2.86%         2.87%
1985-1990     -.18%        -1.01%           -.22%           -.37%          .00%           .00%         6.26%          5.50%           5.78%         5.92%
1990-1995     2.60%          .23%            .36%           1.45%          .00%           .00%         1.15%          1.03%           1.07%         1.05%
1995-2000     1.08%         -.45%            .63%            .65%          .00%           .00%         3.99%          3.63%           3.76%         3.83%
---------
1981-2000     1.13%         -.29%           -.75%            .26%          .00%           .00%         3.65%          3.23%           3.30%         3.43%
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#37 -- ADDABBO - HEINZ SCENARIO                                                FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR CALIF.

                         1981   1982   1983   1984   1985   1986   1987   1988   1989   1990   1991   1992   1993   1994   1995
                         ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----

SPACE HEATING
SATURATION (%)
  EXISTING HOMES               77.77  78.11  78.78  79.64  80.18  80.23  79.99  79.71  79.55  79.57  79.79  80.09  80.22  80.28
  NEW HOMES                    93.88  92.12  92.88  94.15  94.48  93.60  91.46  88.70  86.67  86.14  87.11  88.33  88.50  88.22
  TOTAL HOUSING STOCK  78.92  78.34  78.60  79.28  80.16  80.61  80.63  80.34  79.90  79.76  79.75  79.98  80.31  80.44  80.49


WATER HEATING
SATURATION (%)
  EXISTING HOMES               80.10  79.82  80.94  82.66  83.19  82.34  80.72  79.12  78.13  77.85  78.27  78.90  78.94  78.75
  NEW HOMES                    93.84  92.19  92.94  94.17  94.50  93.66  91.65  89.07  87.19  86.72  87.63  88.78  88.94  88.70
  TOTAL HOUSING STOCK  83.94  80.59  80.26  81.37  83.07  83.53  82.68  81.05  79.41  76.40  78.08  78.52  79.16  79.20  79.01


COOKING
SATURATION (%)
  EXISTING HOMES               55.89  54.49  56.01  56.57  55.64  54.67  52.54  51.12  49.42  48.61  48.08  46.76  45.23  46.72
  NEW HOMES                    28.64  27.53  33.78  37.08  35.85  34.86  29.59  27.77  24.61  24.43  24.43  21.66  18.71  24.50
  TOTAL HOUSING STOCK  57.67  54.92  53.54  55.23  55.88  55.05  54.08  51.85  50.42  48.68  47.98  47.46  46.10  44.54  46.14


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES               13.38  13.22  14.03  14.71  14.80  14.66  14.17  13.85  13.55  13.54  13.67  13.55  13.25  13.81
  NEW HOMES                    13.98  13.84  17.39  18.22  17.17  17.63  15.99  16.69  15.47  15.76  15.40  12.55  10.15  15.28
  TOTAL HOUSING STODR  14.20  13.40  13.24  14.15  14.83  14.87  14.75  14.22  13.93  13.60  13.60  13.71  13.52  13.17  13.85


RESIDENTIAL
CUSTOMERS             699.29 699.01 712.73 742.73 772.07 787.72 798.33 800.84 806.10 812.16 821.88 835.55 846.64 854.51 875.71

HOUSEHOLDS            885697 908991 932897 957432 9826131002953102371410449041066534108861111066821125053114372911627141182015
(TEN-THOUSANDS)
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#37 -- ADDABBO - HEINZ SCENARIO                                                                   FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR CALIF.

                       1996   1997   1998   1999   2000
                       ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----


SPACE HEATING
SATURATION (%)
  EXISTING HOMES      80.22  80.15  80.07  79.94  79.78
  NEW HOMES           87.40  86.60  85.83  84.77  83.58
  TOTAL HOUSING STOCK 80.41  80.32  80.22  80.07  79.88


WATER HEATING
SATURATION (%)
  EXISTING HOMES      78.21  77.71  77.24  76.66  76.04
  NEW HOMES           87.95  87.22  86.51  85.54  84.45
  TOTAL HOUSING STOCK 78.47  77.96  77.48  76.89  76.26


COOKING
SATURATION (%)
  EXISTING HOMES      44.94  43.36  41.82  42.74  40.98
  NEW HOMES           20.27  17.35  14.86  19.01  15.41
  TOTAL HOUSING STOCK 44.29  42.68  41.11  42.12  40.31


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES      13.42  13.05  12.65  12.98  12.56
  NEW HOMES           12.34  10.34   8.61  13.07  10.28
  TOTAL HOUSING STODR 13.39  12.98  12.55  12.98  12.50


RESIDENTIAL
CUSTOMERS            879.92 885.15 890.55 907.78 911.19

HOUSEHOLDS          12016371221584124186212624771283434
(TEN-THOUSANDS)

AVERAGE ANNUAL GROWTH RATE OF RESIDENTIAL CUSTOMERS, 1981-2000:   1.40%
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#37 -- ADDABBO - HEINZ SCENARIO                                                              FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR COLORADO

                                            ANNUAL SALES, SUPPLY AND PRICE OF GAS

                     GAS SALES                                                             AVERAGE GAS PRICE
       ----------------------------------------------                              -----------------------------------      DEMAND
                                  INDUSTRIAL                            ANNUAL                 COMMERCIAL                   WEIGHTED
                                     AND         TOTAL       GAS        SUPPLY                    AND                       AVERAGE
YEAR   RESIDENTIAL  COMMERCIAL    ALL OTHER      SALES      SUPPLY     DEFICIT     RESIDENTIAL  ALL OTHER    INDUSTRIAL      PRICE
----   ----------   ----------   ----------   ----------  ----------  ----------   ----------  ----------   ----------   ----------
       -------------------( BCF )-------------------      (  BCF  )   (  BCF  )    ---------------($/MMBTU IN $1981)---------------
1981      74.59        62.02        44.71       181.33         .00         .00         4.10        3.77         3.38         3.81
1982      71.98        59.41        38.20       169.60         .00         .00         4.66        4.33         3.94         4.38
1983      72.81        58.62        36.68       168.12         .00         .00         4.79        4.46         4.07         4.52
1984      75.63        58.69        36.03       170.36         .00         .00         4.73        4.40         4.01         4.46
1985      79.75        59.52        36.37       175.64         .00         .00         4.57        4.24         3.85         4.31
1986      81.91        59.60        37.28       178.79         .00         .00         4.58        4.25         3.86         4.32
1987      82.04        58.59        37.60       178.23         .00         .00         4.81        4.48         4.09         4.55
1988      81.01        56.74        37.30       175.06         .00         .00         5.22        4.89         4.50         4.96
1989      79.72        54.76        36.56       171.04         .00         .00         5.67        5.34         4.95         5.41
1990      79.55        53.25        35.71       168.51         .00         .00         6.00        5.67         5.28         5.74
1991      80.11        52.37        35.10       167.58         .00         .00         6.16        5.83         5.44         5.91
1992      81.93        52.09        34.90       168.92         .00         .00         6.15        5.82         5.43         5.90
1993      84.12        52.03        35.31       171.47         .00         .00         6.10        5.77         5.38         5.85
1994      85.51        51.63        35.83       172.96         .00         .00         6.18        5.85         5.46         5.93
1995      86.46        51.07        36.25       173.77         .00         .00         6.32        5.99         5.60         6.07
1996      86.87        50.26        36.63       173.76         .00         .00         6.55        6.22         5.83         6.30
1997      87.29        49.47        37.00       173.76         .00         .00         6.78        6.45         6.06         6.53
1998      87.72        48.71        37.22       173.64         .00         .00         7.01        6.68         6.29         6.76
1999      87.88        47.86        37.36       173.10         .00         .00         7.28        6.95         6.56         7.03
2000      87.92        46.97        37.48       172.36         .00         .00         7.57        7.24         6.85         7.32


ANNUAL RATES OF GROWTH
----------------------

1981-1985    1.69%       -1.03%       -5.03%        -.79%        .00%        .00%        2.75%       2.98%        3.31%        3.13%
1985-1990    -.05%       -2.20%        -.37%        -.82%        .00%        .00%        5.60%       5.98%        6.52%        5.91%
1990-1995    1.68%        -.84%         .30%         .62%        .00%        .00%        1.04%       1.10%        1.18%        1.12%
1995-2000     .34%       -1.66%         .67%        -.16%        .00%        .00%        3.68%       3.86%        4.11%        3.82%
---------
1981-2000     .87%       -1.45%        -.92%        -.27%        .00%        .00%        3.28%       3.49%        3.79%        3.50%
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#37 -- ADDABBO - HEINZ SCENARIO                                                                FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR COLORADO

                          1981   1982   1983   1984   1985   1986   1987   1988   1989   1990   1991   1992   1993   1994   1995
                          ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----


SPACE HEATING
SATURATION (%)
  EXISTING HOMES                80.63  80.12  79.73  79.54  79.22  78.65  77.77  76.67  75.54  74.47  73.71  73.07  72.35  71.59
  NEW HOMES                     75.50  69.16  70.03  72.68  73.31  69.97  63.27  55.92  51.04  49.49  50.86  52.91  52.75  51.61
  TOTAL HOUSING STOCK    81.76  80.39  79.61  79.27  79.22  79.01  78.34  77.25  75.93  74.65  73.69  73.00  72.44  71.74  70.97


WATER HEATING
SATURATION (%)
  EXISTING HOMES                75.18  74.37  74.51  75.14  75.06  73.98  72.21  70.30 .68.72  67.65  67.21  66.97  66.36  65.57
  NEW HOMES                     75.91  69.97  70.85  73.38  73.99  70.84  64.50  57.53  52.87  51.39  52.71  54.69  54.55  53.46
  TOTAL HOUSING STOCK    78.66  75.22  74.16  74.34  75.06  75.02  73.87  71.93  69.84  68.15  67.14  66.76  66.59  65.99  65.19


COOKING
SATURATION (%)
  EXISTING HOMES                25.32  25.55  26.36  27.60  28.76  28.91  29.04  28.77  28.87  28.88  29.11  29.33  29.38  29.21
  NEW HOMES                     35.81  34.37  36.85  41.33  44.70  42.04  40.51  36.23  35.68  34.20  34.41  34.48  33.73  31.82
  TOTAL HOUSING STOCK    25.74  25.81  25.96  26.85  28.24  29.33  29.39  29.46  29.04  29.12  29.04  29.27  29.49  29.52  29.29


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES                 4.50   5.03   5.74   6.60   7.44   7.85   8.20   8.47   8.87   9.31   9.80  10.29  10.64  10.87
  NEW HOMES                     17.92  17.84  19.21  21.48  23.78  23.15  24.28  23.38  24.44  23.89  23.82  23.43  23.02  21.94
  TOTAL HOUSING STODR     4.73   5.13   5.63   6.37   7.29   8.03   8.40   8.78   9.01   9.43   9.77  10.24  10.70  11.02  11.22


RESIDENTIAL
CUSTOMERS                79.97  81.58  84.15  87.72  91.98  94.92  96.83  98.31  99.36 100.84 102.15 104.03 106.09 107.82 109.30

HOUSEHOLDS              110164 114383 118764 123313 128035 131492 135043 138689 142433 146279 149497 152786 156148 159583 163094
(TEN-THOUSANDS)
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#37 -- ADDABBO - HEINZ SCENARIO                                            FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR COLORADO

                          1996   1997   1998   1999   2000
                          ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----

SPACE HEATING
SATURATION (%)
  EXISTING HOMES         70.73  69.84  68.92  67.94  66.91
  NEW HOMES              49.34  47.20  45.20  42.75  40.21
  TOTAL HOUSING STOCK    70.06  69.13  68.18  67.15  66.07


WATER HEATING
SATURATION (%)
  EXISTING HOMES         64.52  63.47  62.43  61.28  60.08
  NEW HOMES              51.28  49.22  47.28  44.90  42.42
  TOTAL HOUSING STOCK    64.11  63.03  61.95  60.76  59.53


COOKING
SATURATION (%)
  EXISTING HOMES         29.00  28.75  28.47  28.10  27.67
  NEW HOMES              30.19  28.62  27.18  25.41  23.64
  TOTAL HOUSING STOCK    29.04  28.74  28.43  28.01  27.54


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES         11.04  11.19  11.32  11.40  11.44
  NEW HOMES              21.45  20.93  20.44  19.73  18.97
  TOTAL HOUSING STODR    11.36  11.49  11.61  11.66  11.68


RESIDENTIAL
CUSTOMERS               110.57 111.81 113.02 114.06 114.99

HOUSEHOLDS              166682 170349 174096 177926 181841
(TEN-THOUSANDS)

AVERAGE ANNUAL GROWTH RATE OF RESIDENTIAL CUSTOMERS, 1981-2000:   1.93%
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#37 -- ADDABBO - HEINZ SCENARIO

FRI, MAY 13, 1983, 3:37 PM

GAS DEMAND MODEL FOR CONN.

ANNUAL SALES, SUPPLY AND PRICE OF GAS

	GAS SALES						AVERAGE GAS PRICE			
YEAR	RESIDENTIAL	COMMERCIAL	INDUSTRIAL AND ALL OTHER	TOTAL SALES	GAS SUPPLY	ANNUAL SUPPLY DEFICIT	RESIDENTIAL	COMMERCIAL AND ALL OTHER	INDUSTRIAL	DEMAND WEIGHTED AVERAGE PRICE
	(BCF)				(BCF)	(BCF)	($/MMBTU IN $1981)			
1981	33.94	23.23	20.63	77.80	.00	.00	6.65	5.46	4.96	5.85
1982	33.37	22.56	18.98	74.91	.00	.00	7.21	6.02	5.52	6.42
1983	34.01	22.34	18.63	74.98	.00	.00	7.34	6.15	5.65	6.57
1984	35.48	22.39	18.45	76.32	.00	.00	7.28	6.09	5.59	6.52
1985	37.62	22.66	18.42	78.70	.00	.00	7.12	5.93	5.43	6.38
1986	39.28	22.77	18.65	80.70	.00	.00	7.13	5.94	5.44	6.40
1987	40.71	22.59	18.90	82.20	.00	.00	7.36	6.17	5.67	6.64
1988	41.38	22.15	19.13	82.66	.00	.00	7.77	6.58	6.08	7.06
1989	41.99	21.65	19.31	82.94	.00	.00	8.22	7.03	6.53	7.52
1990	43.00	21.27	19.43	83.70	.00	.00	8.55	7.36	6.86	7.86
1991	44.23	21.06	19.50	84.78	.00	.00	8.71	7.52	7.02	8.03
1992	45.93	21.04	19.64	86.61	.00	.00	8.70	7.51	7.01	8.03
1993	47.84	21.12	19.89	88.85	.00	.00	8.65	7.46	6.96	7.99
1994	49.50	21.09	20.19	90.78	.00	.00	8.73	7.54	7.04	8.08
1995	51.00	21.02	20.52	92.54	.00	.00	8.87	7.68	7.18	8.22
1996	52.36	20.87	20.83	94.06	.00	.00	9.10	7.91	7.41	8.46
1997	53.78	20.73	21.14	95.65	.00	.00	9.33	8.14	7.64	8.70
1998	55.30	20.60	21.43	97.33	.00	.00	9.56	8.37	7.87	8.94
1999	56.69	20.43	21.72	98.85	.00	.00	9.83	8.64	8.14	9.21
2000	58.09	20.26	21.99	100.34	.00	.00	10.12	8.93	8.43	9.51

ANNUAL RATES OF GROWTH

1981-1985	2.61%	-.62%	-2.79%	.29%	.00%	.00%	1.72%	2.09%	2.29%	2.21%
1985-1990	2.71%	-1.26%	1.07%	1.24%	.00%	.00%	3.73%	4.42%	4.79%	4.24%
1990-1995	3.47%	-.24%	1.10%	2.03%	.00%	.00%	.74%	.85%	.92%	.92%
1995-2000	2.64%	-.73%	1.39%	1.63%	.00%	.00%	2.67%	3.06%	3.26%	2.94%
1981-2000	2.87%	-.72%	.34%	1.35%	.00%	.00%	2.23%	2.62%	2.83%	2.59%

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#37 -- ADDABBO - HEINZ SCENARIO
                                                                                          FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR CONN.

                           1981    1982    1983    1984    1985    1986    1987    1988    1989    1990    1991    1992    1993    1994    1995
                           ----    ----    ----    ----    ----    ----    ----    ----    ----    ----    ----    ----    ----    ----    ----

SPACE HEATING
SATURATION (%)
  EXISTING HOMES                  21.69   22.36   22.95   23.63   24.33   24.99   25.53   25.93   26.25   26.55   26.82   27.14   27.48   27.82
  NEW HOMES                       46.19   41.42   44.03   48.07   49.63   48.01   44.07   39.98   37.69   37.82   39.92   42.52   43.62   44.03
  TOTAL HOUSING STOCK     21.89   22.39   22.90   23.55   24.32   25.05   25.64   26.05   26.33   26.57   26.80   27.11   27.49   27.84   28.17


WATER HEATING
SATURATION (%)
  EXISTING HOMES                  28.06   28.55   29.25   30.12   30.78   31.17   31.29   31.29   31.32   31.50   31.83   32.23   32.53   32.78
  NEW HOMES                       48.45   43.94   46.55   50.50   52.00   50.43   46.60   42.60   40.34   40.46   42.51   45.05   46.11   46.50
  TOTAL HOUSING STOCK     28.96   28.64   28.98   29.74   30.69   31.38   31.71   31.73   31.61   31.58   31.70   32.06   32.52   32.83   33.08


COOKING
SATURATION (%)
  EXISTING HOMES                  29.00   29.12   29.58   30.44   30.64   31.15   30.80   30.40   30.15   30.11   30.05   29.96   29.76   29.37
  NEW HOMES                       34.24   33.69   34.64   37.68   36.91   38.71   34.91   31.58   29.70   29.09   28.21   27.23   25.88   23.80
  TOTAL HOUSING STOCK     29.47   29.15   29.25   29.73   30.65   30.81   31.36   30.92   30.43   30.14   30.09   30.01   29.90   29.67   29.25


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES                   3.57    3.85    4.21    4.63    4.89    5.15    5.27    5.34    5.42    5.56    5.66    5.75    5.77    5.74
  NEW HOMES                       13.68   13.25   12.80   13.45   12.41   13.76   12.14   10.86   10.07    9.59    8.58    7.51    6.60    5.53
  TOTAL HOUSING STODR      3.71    3.86    4.12    4.45    4.88    5.11    5.40    5.46    5.49    5.56    5.64    5.73    5.79    5.79    5.73


RESIDENTIAL
CUSTOMERS                 37.94   38.65   39.75   41.22   43.05   44.47   45.95   46.82   47.57   48.43   49.16   50.01   50.92   51.71   52.39

HOUSEHOLDS               111468  113574  115721  117908  120137  122407  124721  127078  129480  131927  133563  135219  136896  138593  140312
(TEN-THOUSANDS)
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#37 -- ADDABBO - HEINZ SCENARIO                                                   FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR CONN.

                           1996    1997    1998    1999    2000
                           ----    ----    ----    ----    ----    ----    ----    ----    ----    ----    ----    ----    ----    ----    ----


SPACE HEATING
SATURATION (%)
  EXISTING HOMES          28.12   28.42   28.71   28.97   29.22
  NEW HOMES               43.72   43.47   43.28   42.73   42.07
  TOTAL HOUSING STOCK     28.47   28.75   29.03   29.28   29.50


WATER HEATING
SATURATION (%)
  EXISTING HOMES          32.93   33.08   33.22   33.32   33.39
  NEW HOMES               46.18   45.92   45.72   45.17   44.50
  TOTAL HOUSING STOCK     33.23   33.36   33.50   33.58   33.64


COOKING
SATURATION (%)
  EXISTING HOMES          29.01   28.64   28.34   27.92   27.50
  NEW HOMES               22.23   20.82   19.92   18.52   17.35
  TOTAL HOUSING STOCK     28.86   28.47   28.16   27.71   27.28


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES           5.68    5.62    5.56    5.47    5.38
  NEW HOMES                4.89    4.34    4.00    3.53    3.17
  TOTAL HOUSING STODR      5.66    5.59    5.53    5.43    5.33


RESIDENTIAL
CUSTOMERS                 53.03   53.68   54.37   54.95   55.53

HOUSEHOLDS               142051  143813  145596  147402  149229
(TEN-THOUSANDS)

AVERAGE ANNUAL GROWTH RATE OF RESIDENTIAL CUSTOMERS, 1981-2000:   2.03%
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#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

GAS DEMAND MODEL FOR DELAWARE

ANNUAL SALES, SUPPLY AND PRICE OF GAS

	GAS SALES						AVERAGE GAS PRICE			
YEAR	RESIDENTIAL	COMMERCIAL	INDUSTRIAL AND ALL OTHER	TOTAL SALES	GAS SUPPLY	ANNUAL SUPPLY DEFICIT	RESIDENTIAL	COMMERCIAL AND ALL OTHER	INDUSTRIAL	DEMAND WEIGHTED AVERAGE PRICE
	(BCF)				(BCF)	(BCF)	($/MMBTU IN $1981)			
1981	7.28	3.57	7.74	18.59	.00	.00	5.32	4.88	3.84	4.62
1982	7.10	3.46	6.35	16.92	.00	.00	5.88	5.44	4.40	5.23
1983	7.23	3.44	6.16	16.83	.00	.00	6.01	5.57	4.53	5.38
1984	7.56	3.45	6.12	17.13	.00	.00	5.95	5.51	4.47	5.33
1985	8.03	3.51	6.21	17.75	.00	.00	5.79	5.35	4.31	5.18
1986	8.41	3.53	6.40	18.34	.00	.00	5.80	5.36	4.32	5.20
1987	8.64	3.50	6.50	18.64	.00	.00	6.03	5.59	4.55	5.43
1988	8.73	3.43	6.51	18.67	.00	.00	6.44	6.00	4.96	5.84
1989	8.82	3.35	6.45	18.61	.00	.00	6.89	6.45	5.41	6.30
1990	8.98	3.28	6.37	18.63	.00	.00	7.22	6.78	5.74	6.64
1991	9.23	3.25	6.32	18.80	.00	.00	7.38	6.94	5.90	6.81
1992	9.61	3.25	6.35	19.21	.00	.00	7.37	6.93	5.89	6.81
1993	10.03	3.26	6.48	19.77	.00	.00	7.32	6.88	5.84	6.76
1994	10.37	3.26	6.62	20.25	.00	.00	7.40	6.96	5.92	6.85
1995	10.67	3.24	6.75	20.66	.00	.00	7.54	7.10	6.06	6.99
1996	10.93	3.22	6.86	21.00	.00	.00	7.77	7.33	6.29	7.22
1997	11.18	3.19	6.97	21.34	.00	.00	8.00	7.56	6.52	7.45
1998	11.44	3.16	7.05	21.66	.00	.00	8.23	7.79	6.75	7.68
1999	11.67	3.13	7.12	21.92	.00	.00	8.50	8.06	7.02	7.96
2000	11.89	3.09	7.19	22.17	.00	.00	8.79	8.35	7.31	8.25

ANNUAL RATES OF GROWTH

1981-1985	2.46%	-.43%	-5.32%	-1.15%	.00%	.00%	2.14%	2.33%	2.93%	2.93%
1985-1990	2.27%	-1.30%	.48%	.97%	.00%	.00%	4.51%	4.85%	5.90%	5.06%
1990-1995	3.51%	-.25%	1.18%	2.09%	.00%	.00%	.87%	.93%	1.09%	1.04%
1995-2000	2.18%	-.93%	1.26%	1.41%	.00%	.00%	3.12%	3.30%	3.82%	3.37%
1981-2000	2.61%	-.75%	-.39%	.93%	.00%	.00%	2.68%	2.87%	3.45%	3.10%

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#37 -- ADDABBO - HEINZ SCENARIO                                                FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR DELAWARE

                          1981   1982   1983   1984   1985   1986   1987   1988   1989   1990   1991   1992   1993   1994   1995
                          ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----


SPACE HEATING
SATURATION (%)
  EXISTING HOMES                27.09  28.01  28.86  29.79  30.71  31.51  32.12  32.55  32.85  33.11  33.38  33.70  34.00  34.26
  NEW HOMES                     59.82  54.13  56.41  60.35  61.35  58.63  53.07  47.25  43.64  42.62  44.00  45.96  46.09  45.42
  TOTAL HOUSING STOCK   27.39   28.06  28.79  29.67  30.70  31.61  32.30  32.73  32.98  33.17  33.36  33.66  34.01  34.31  34.55


WATER HEATING
SATURATION (%)
  EXISTING HOMES                34.70  35.27  36.17  37.29  38.06  38.38  38.32  38.09  37.92  37.93  38.16  38.49  38.63  38.69
  NEW HOMES                     59.61  54.19  56.41  60.19  61.10  58.41  52.99  47.32  43.78  42.73  43.99  45.81  45.87  45.15
  TOTAL HOUSING STOCK   35.97   35.44  35.83  36.77  37.97  38.73  38.96  38.75  38.36  38.10  38.05  38.31  38.68  38.82  38.85


COOKING
SATURATION (%)
  EXISTING HOMES                27.64  27.41  27.64  28.08  28.24  28.05  27.50  26.92  26.45  26.17  26.06  25.92  25.65  25.18
  NEW HOMES                     24.69  23.43  24.23  25.94  26.47  25.36  22.58  20.16  18.60  18.04  17.99  17.72  17.04  15.57
  TOTAL HOUSING STOCK   28.28   27.56  27.29  27.54  28.02  28.19  27.97  27.36  26.72  26.22  25.96  25.86  25.71  25.43  24.94


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES                 5.73   5.73   5.90   6.11   6.18   6.12   5.95   5.78   5.65   5.59   5.58   5.57   5.49   5.37
  NEW HOMES                      7.19   6.49   6.15   6.02   5.87   5.56   4.91   4.41   4.09   3.75   3.49   3.13   2.82   2.36
  TOTAL HOUSING STODR    6.01    5.78   5.76   5.91   6.11   6.17   6.10   5.92   5.74   5.60   5.54   5.53   5.50   5.43   5.29


RESIDENTIAL
CUSTOMERS                7.89    8.01   8.23   8.55   8.91   9.23   9.46   9.62   9.75   9.90  10.05  10.25  10.46  10.64  10.79

HOUSEHOLDS              21120   21549  21986  22433  22888  23341  23804  24275  24755  25246  25657  26075  26500  26932  27371
(TEN-THOUSANDS)
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#37 -- ADDABBO - HEINZ SCENARIO                                                      FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR DELAWARE

                          1996   1997   1998   1999   2000
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SPACE HEATING
SATURATION (%)
  EXISTING HOMES         34.47  34.63  34.75  34.83  34.85
  NEW HOMES              43.85  42.38  41.02  39.29  37.46
  TOTAL HOUSING STOCK    34.71  34.83  34.92  34.94  34.91


WATER HEATING
SATURATION (%)
  EXISTING HOMES         38.58  38.45  38.30  38.07  37.79
  NEW HOMES              43.57  42.09  40.71  38.97  37.15
  TOTAL HOUSING STOCK    38.71  38.55  38.36  38.09  37.77


COOKING
SATURATION (%)
  EXISTING HOMES         24.78  24.36  23.94  23.47  22.97
  NEW HOMES              14.65  13.78  12.97  12.04  11.12
  TOTAL HOUSING STOCK    24.52  24.09  23.66  23.17  22.66


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES          5.24   5.12   4.99   4.85   4.71
  NEW HOMES               2.15   1.95   1.77   1.58   1.41
  TOTAL HOUSING STODR     5.16   5.03   4.91   4.77   4.62


RESIDENTIAL
CUSTOMERS                10.92  11.06  11.19  11.30  11.40

HOUSEHOLDS               27817  28271  28732  29200  29676
(TEN-THOUSANDS)

AVERAGE ANNUAL GROWTH RATE OF RESIDENTIAL CUSTOMERS, 1981-2000:   1.96%
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037 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

GAS DEMAND MODEL FOR FLORIDA

ANNUAL SALES, SUPPLY AND PRICE OF GAS

	GAS SALES						AVERAGE GAS PRICE			
YEAR	RESIDENTIAL	COMMERCIAL	INDUSTRIAL AND ALL OTHER	TOTAL SALES	GAS SUPPLY	ANNUAL SUPPLY DEFICIT	RESIDENTIAL	COMMERCIAL AND ALL OTHER	INDUSTRIAL	DEMAND WEIGHTED AVERAGE PRICE
	(BCF)				(BCF)	(BCF)	($/MMBTU IN $1981)			
1981	18.68	32.76	89.46	140.90	.00	.00	5.18	3.58	3.09	3.48
1982	18.34	31.42	79.21	128.98	.00	.00	5.74	4.14	3.65	4.07
1983	18.62	31.04	75.87	125.53	.00	.00	5.87	4.27	3.78	4.21
1984	19.45	31.14	74.13	124.71	.00	.00	5.81	4.21	3.72	4.17
1985	20.54	31.66	74.09	126.28	.00	.00	5.65	4.05	3.56	4.02
1986	21.17	31.75	75.38	128.30	.00	.00	5.66	4.06	3.57	4.04
1987	21.28	31.22	76.04	128.54	.00	.00	5.89	4.29	3.80	4.27
1988	21.12	30.20	75.79	127.12	.00	.00	6.30	4.70	4.21	4.67
1989	20.86	29.09	74.82	124.77	.00	.00	6.75	5.15	4.66	5.12
1990	20.82	28.24	73.69	122.75	.00	.00	7.08	5.48	4.99	5.46
1991	20.93	27.74	72.71	121.38	.00	.00	7.24	5.64	5.15	5.62
1992	21.44	27.57	72.72	121.74	.00	.00	7.23	5.63	5.14	5.62
1993	21.84	27.53	73.64	123.01	.00	.00	7.18	5.58	5.09	5.57
1994	22.33	27.30	74.90	124.53	.00	.00	7.26	5.66	5.17	5.65
1995	22.38	26.98	76.19	125.55	.00	.00	7.40	5.80	5.31	5.79
1996	22.62	26.53	77.32	126.47	.00	.00	7.63	6.03	5.54	6.02
1997	22.57	26.09	78.31	126.97	.00	.00	7.86	6.26	5.77	6.24
1998	22.80	25.66	79.21	127.67	.00	.00	8.09	6.49	6.00	6.47
1999	22.68	25.19	80.00	127.87	.00	.00	8.36	6.76	6.27	6.74
2000	22.78	24.69	80.75	128.22	.00	.00	8.65	7.05	6.56	7.03

ANNUAL RATES OF GROWTH

1981-1985	2.40%	-.85%	-4.61%	-2.70%	.00%	.00%	2.20%	3.13%	3.60%	3.68%
1985-1990	.27%	-2.26%	-.11%	-.57%	.00%	.00%	4.62%	6.23%	6.99%	6.29%
1990-1995	1.46%	-.91%	.67%	.45%	.00%	.00%	.89%	1.14%	1.25%	1.18%
1995-2000	.36%	-1.76%	1.17%	.42%	.00%	.00%	3.17%	3.98%	4.32%	3.95%
1981-2000	1.05%	-1.48%	-.54%	-.49%	.00%	.00%	2.74%	3.63%	4.04%	3.77%

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#37 -- ADDABBO - HEINZ SCENARIO                                                                              FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR FLORIDA

                          1981    1982    1983    1984    1985    1986    1987    1988    1989    1990    1991    1992    1993    1994    1995
                          ----    ----    ----    ----    ----    ----    ----    ----    ----    ----    ----    ----    ----    ----    ----

SPACE HEATING
SATURATION (%)
  EXISTING HOMES                 11.48   11.58   11.57   11.60   11.64   11.65   11.59   11.44   11.26   11.08   10.94   10.82   10.70   10.58
  NEW HOMES                      14.27   11.09   11.48   12.66   13.10   11.80    9.57    7.67    6.65    6.41    6.77    7.31    7.36    7.18
  TOTAL HOUSING STOCK    11.62   11.61   11.56   11.57   11.64   11.70   11.66   11.52   11.31   11.10   10.93   10.81   10.71   10.60   10.47


WATER HEATING
SATURATION (%)
  EXISTING HOMES                 10.56   10.43   10.34   10.33   10.26   10.11    9.85    9.55    9.28    9.06    8.93    8.82    8.68    8.53
  NEW HOMES                       9.89    7.70    8.00    8.82    9.14    8.24    6.68    5.37    4.68    4.51    4.76    5.14    5.17    5.05
  TOTAL HOUSING STOCK    10.99   10.53   10.30   10.24   10.26   10.22   10.04    9.74    9.40    9.12    8.92    8.80    8.71    8.58    8.42


COOKING
SATURATION (%)
  EXISTING HOMES                 10.17   10.21   10.47   10.73   10.97   10.94   10.97   10.91   10.89   10.87   11.02   10.95   11.14   10.96
  NEW HOMES                      13.03   12.45   13.63   14.46   15.01   13.71   13.28   12.34   11.96   11.47   12.44   11.31   12.68   10.68
  TOTAL HOUSING STOCK    10.28   10.30   10.31   10.61   10.90   11.11   11.06   11.06   10.96   10.93   10.88   11.07   10.96   11.19   10.95


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES                  2.38    2.74    3.18    3.64    4.04    4.25    4.43    4.60    4.81    5.05    5.36    5.55    5.84    5.93
  NEW HOMES                      11.29   11.20   11.85   11.96   12.26   11.83   12.39   12.56   12.83   12.65   13.28   12.20   13.31   11.87
  TOTAL HOUSING STODR     2.48    2.78    3.12    3.58    4.01    4.33    4.52    4.71    4.88    5.10    5.28    5.60    5.75    6.07    6.11


RESIDENTIAL
CUSTOMERS                41.87   43.06   44.43   46.59   49.04   50.80   51.81   52.60   53.07   53.70   54.24   55.43   56.12   57.47   57.73

HOUSEHOLDS              388017  402451  417422  432950  449056  460821  472894  485284  497999  511046  521983  533153  544563  556216  568119
(TEN-THOUSANDS)
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#37 -- ADDABBO - HEINZ SCENARIO                                                 FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR FLORIDA

                           1996    1997    1998    1999    2000
                           ----    ----    ----    ----    ----    ----    ----    ----    ----    ----    ----    ----    ----    ----    ----

SPACE HEATING
SATURATION (%)
  EXISTING HOMES          10.44   10.30   10.16   10.00    9.84
  NEW HOMES                6.77    6.40    6.07    5.67    5.27
  TOTAL HOUSING STOCK     10.33   10.18   10.03    9.87    9.70


WATER HEATING
SATURATION (%)
  EXISTING HOMES           8.35    8.17    7.99    7.80    7.61
  NEW HOMES                4.77    4.51    4.29    4.01    3.73
  TOTAL HOUSING STOCK      8.24    8.06    7.87    7.68    7.49


COOKING
SATURATION (%)
  EXISTING HOMES          11.06   10.86   10.93   10.70   10.69
  NEW HOMES               11.56    9.95   10.69    9.10    9.46
  TOTAL HOUSING STOCK     11.07   10.83   10.92   10.65   10.65


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES           6.14    6.20    6.39    6.42    6.57
  NEW HOMES               12.95   11.86   12.84   11.68   12.45
  TOTAL HOUSING STODR      6.35    6.37    6.59    6.59    6.75


RESIDENTIAL
CUSTOMERS                 58.73   58.89   59.81   59.81   60.45

HOUSEHOLDS               580277  592695  605379  618334  631566
(TEN-THOUSANDS)

AVERAGE ANNUAL GROWTH RATE OF RESIDENTIAL CUSTOMERS, 1981-2000:    1.95%
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#37 -- ADDABBO - HEINZ SCENARIO

FRI, MAY 13, 1983, 3:37 PM

GAS DEMAND MODEL FOR GEORGIA

ANNUAL SALES, SUPPLY AND PRICE OF GAS

YEAR	GAS SALES RESIDENTIAL	COMMERCIAL	INDUSTRIAL AND ALL OTHER	TOTAL SALES	GAS SUPPLY	ANNUAL SUPPLY DEFICIT	AVERAGE GAS PRICE RESIDENTIAL	COMMERCIAL AND ALL OTHER	INDUSTRIAL	DEMAND WEIGHTED AVERAGE PRICE
	(BCF)				(BCF)	(BCF)	($/MMBTU IN $1981)			
1981	94.70	61.50	158.09	314.28	.00	.00	4.57	3.54	3.53	3.85
1982	90.62	58.55	140.77	289.94	.00	.00	5.13	4.10	4.09	4.42
1983	90.55	57.52	135.74	283.81	.00	.00	5.26	4.23	4.22	4.55
1984	92.96	57.38	133.33	283.68	.00	.00	5.20	4.17	4.16	4.50
1985	96.67	58.00	133.69	288.36	.00	.00	5.04	4.01	4.00	4.35
1986	98.83	57.91	136.35	293.08	.00	.00	5.05	4.02	4.01	4.36
1987	98.91	56.71	138.09	293.72	.00	.00	5.28	4.25	4.24	4.59
1988	97.82	54.68	138.42	290.93	.00	.00	5.69	4.66	4.65	5.00
1989	96.56	52.55	137.50	286.61	.00	.00	6.14	5.11	5.10	5.45
1990	96.42	50.92	136.21	283.55	.00	.00	6.47	5.44	5.43	5.79
1991	97.29	49.94	135.05	282.28	.00	.00	6.63	5.60	5.59	5.95
1992	99.74	49.56	135.58	284.89	.00	.00	6.62	5.59	5.58	5.95
1993	102.23	49.39	137.71	289.33	.00	.00	6.57	5.54	5.53	5.90
1994	104.46	48.89	140.43	293.78	.00	.00	6.65	5.62	5.61	5.98
1995	105.64	48.24	143.18	297.06	.00	.00	6.79	5.76	5.75	6.12
1996	106.84	47.36	145.69	299.90	.00	.00	7.02	5.99	5.98	6.35
1997	107.55	46.50	147.95	302.00	.00	.00	7.25	6.22	6.21	6.58
1998	108.84	45.68	150.06	304.57	.00	.00	7.48	6.45	6.44	6.81
1999	109.35	44.78	151.95	306.07	.00	.00	7.75	6.72	6.71	7.08
2000	110.23	43.86	153.75	307.84	.00	.00	8.04	7.01	7.00	7.37

ANNUAL RATES OF GROWTH

1981-1985	.52%	-1.45%	-4.10%	-2.13%	.00%	.00%	2.48%	3.17%	3.17%	3.13%
1985-1990	-.05%	-2.57%	.38%	-.34%	.00%	.00%	5.12%	6.29%	6.30%	5.87%
1990-1995	1.84%	-1.08%	1.00%	.93%	.00%	.00%	.97%	1.15%	1.15%	1.14%
1995-2000	.85%	-1.89%	1.44%	.72%	.00%	.00%	3.44%	4.01%	4.01%	3.79%
1981-2000	.80%	-1.76%	-.15%	-.11%	.00%	.00%	3.02%	3.66%	3.67%	3.49%

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#37 -- ADDABBO - HEINZ SCENARIO                                                        FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR GEORGIA

                             1981   1982   1983   1984   1985   1986   1987   1988   1989   1990   1991   1992   1993   1994   1995
                             ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----

SPACE HEATING
SATURATION (%)
  EXISTING HOMES                   54.00  53.82  53.71  53.79  53.83  53.70  53.36  52.86  52.33  51.86  51.54  51.31  51.06  50.79
  NEW HOMES                        52.03  46.33  49.22  54.11  55.98  53.43  47.70  41.89  38.63  38.06  40.08  42.76  43.44  43.22
  TOTAL HOUSING STOCK       54.66  53.93  53.58  53.56  53.80  53.89  53.69  53.20  52.56  51.95  51.50  51.25  51.09  50.87  50.60


WATER HEATING
SATURATION (%)
  EXISTING HOMES                   42.33  42.29  42.75  43.54  43.93  43.76  43.16  42.42  41.84  41.51  41.52  41.67  41.61  41.46
  NEW HOMES                        49.56  44.26  47.14  51.94  53.80  51.38  45.91  40.41  37.35  36.84  38.79  41.37  42.05  41.87
  TOTAL HOUSING STOCK       44.04  42.56  42.36  42.89  43.81  44.21  43.97  43.24  42.37  41.72  41.39  41.45  41.66  41.62  41.47


COOKING
SATURATION (%)
  EXISTING HOMES                   27.33  26.83  26.99  27.10  27.06  26.51  26.86  25.47  25.06  24.65  24.74  24.28  24.46  23.76
  NEW HOMES                        17.56  16.75  18.27  19.41  20.10  18.34  17.61  16.25  15.67  15.01  16.22  14.82  16.51  13.97
  TOTAL HOUSING STOCK       27.66  27.02  26.51  26.71  26.86  26.87  26.28  25.82  25.21  24.79  24.40  24.52  24.04  24.26  23.51


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES                    3.44   3.55   3.79   4.04   4.22   4.26   4.28   4.30   4.36   4.44   4.62   4.71   4.87   4.86
  NEW HOMES                         7.97   7.70   8.19   8.10   8.32   7.69   8.21   8.29   8.50   8.18   8.90   7.46   8.76   6.93
  TOTAL HOUSING STODR        3.58   3.58   3.68   3.93   4.17   4.34   4.36   4.40   4.41   4.47   4.54   4.73   4.78   4.97   4.92


RESIDENTIAL
CUSTOMERS                  101.98 102.62 104.21 106.98 110.17 112.51 113.86 114.81 115.44 116.37 117.35 119.17 120.65 122.58 123.52

HOUSEHOLDS                 191431 195757 200181 204705 209332 213225 217191 22'231 225346 229537 233233 236988 240803 244680 248620
(TEN-THOUSANDS)
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#37 -- ADDABBO - HEINZ SCENARIO                                                     FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR GEORGIA

                           1996  1997  1998  1999  2000
                           ----  ----  ----  ----  ----  ----  ----  ----  ----  ----  ----  ----  ----  ----  ----

SPACE HEATING
SATURATION (%)
  EXISTING HOMES          50.47 50.12 49.76 49.37 48.94
  NEW HOMES               41.99 40.88 39.88 38.47 36.95
  TOTAL HOUSING STOCK     50.25 49.88 49.51 49.09 48.63


WATER HEATING
SATURATION (%)
  EXISTING HOMES          41.16 40.85 40.53 40.15 39.74
  NEW HOMES               40.72 39.69 38.75 37.43 36.00
  TOTAL HOUSING STOCK     41.15 40.82 40.49 40.08 39.64


COOKING
SATURATION (%)
  EXISTING HOMES          23.74 23.08 23.02 22.33 22.14
  NEW HOMES               15.02 12.95 13.84 11.79 12.20
  TOTAL HOUSING STOCK     23.52 22.82 22.79 22.06 21.89


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES           4.95  4.92  5.00  4.96  5.00
  NEW HOMES                8.09  6.76  7.78  6.42  7.14
  TOTAL HOUSING STODR      5.03  4.97  5.08  4.99  5.05


RESIDENTIAL
CUSTOMERS               125.01 125.80 127.24 127.90 129.07

HOUSEHOLDS              252622 256690 260822 265022 269288
(TEN-THOUSANDS)

AVERAGE ANNUAL GROWTH RATE OF RESIDENTIAL CUSTOMERS, 1981-2000:   1.25%
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#37 -- ADDARBO - HEINZ SCENARIO                                                              FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR IDAHO

                                            ANNUAL SALES, SUPPLY AND PRICE OF GAS

                     GAS SALES                                                           AVERAGE GAS PRICE
       --------------------------------------------                              ---------------------------------     DEMAND
                                   INDUSTRIAL                          ANNUAL                 COMMERCIAL                 WEIGHTED
                                      AND         TOTAL       GAS      SUPPLY                    AND                     AVERAGE
YEAR   RESIDENTIAL  COMMERCIAL    ALL OTHER       SALES     SUPPLY     DEFICIT   RESIDENTIAL  ALL OTHER    INDUSTRIAL     PRICE
----   -----------  ----------   ----------   ----------  ----------  ----------  ----------  ----------   ----------   ----------
       -------------------( BCF )-------------------     ( BCF )     ( BCF )     ---------------($/MMBTU IN $1981)---------------
1981         6.70        8.12        26.16        40.98         .00         .00        5.49        4.68         3.87         4.30
1982         6.53        7.80        23.18        37.52         .00         .00        6.05        5.24         4.43         4.88
1983         6.56        7.67        22.14        36.37         .00         .00        6.18        5.37         4.56         5.02
1984         6.71        7.64        21.62        35.96         .00         .00        6.12        5.31         4.50         4.97
1985         6.93        7.69        21.65        36.26         .00         .00        5.96        5.15         4.34         4.82
1986         7.02        7.66        22.05        36.73         .00         .00        5.97        5.16         4.35         4.83
1987         7.01        7.53        22.23        36.77         .00         .00        6.20        5.39         4.58         5.05
1988         6.94        7.30        22.14        36.37         .00         .00        6.61        5.80         4.99         5.46
1989         6.84        7.06        21.84        35.73         .00         .00        7.06        6.25         5.44         5.91
1990         6.80        6.87        21.48        35.15         .00         .00        7.39        6.58         5.77         6.24
1991         6.82        6.75        21.23        34.80         .00         .00        7.55        6.74         5.93         6.40
1992         6.92        6.70        21.31        34.94         .00         .00        7.54        6.73         5.92         6.40
1993         7.05        6.68        21.76        35.49         .00         .00        7.49        6.68         5.87         6.34
1994         7.13        6.62        22.24        35.99         .00         .00        7.57        6.76         5.95         6.42
1995         7.19        6.54        22.78        36.51         .00         .00        7.71        6.90         6.09         6.55
1996         7.22        6.44        23.23        36.89         .00         .00        7.94        7.13         6.32         6.78
1997         7.25        6.34        23.66        37.24         .00         .00        8.17        7.36         6.55         7.00
1998         7.27        6.24        24.07        37.59         .00         .00        8.40        7.59         6.78         7.23
1999         7.29        6.13        24.42        37.84         .00         .00        8.67        7.86         7.05         7.49
2000         7.29        6.02        24.72        38.04         .00         .00        8.96        8.15         7.34         7.78


ANNUAL RATES OF GROWTH
----------------------

1981-1985     .82%      -1.35%       -4.62%       -3.01%        .00%        .00%       2.07%       2.42%        2.91%        2.93%
1985-1990   -.37%      -2.24%        -.15%        -.62%        .00%        .00%       4.39%       5.02%        5.86%        5.30%
1990-1995   1.13%       -.97%        1.18%         .76%        .00%        .00%        .85%        .95%        1.09%         .98%
1995-2000    .28%      -1.63%        1.65%         .82%        .00%        .00%       3.05%       3.39%        3.80%        3.49%
---------
1981-2000    .45%      -1.56%        -.30%        -.39%        .00%        .00%       2.61%       2.96%        3.43%        3.17%
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837 -- ADDABBO - HEINZ SCENARIO                                                                    FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR IDAHO

                             1981   1982   1983   1984   1985   1986   1987   1988   1989   1990   1991   1992   1993   1994   1995
                             ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----

SPACE HEATING
SATURATION (%)
  EXISTING HOMES                   26.83  26.55  26.21  25.96  25.73  25.51  25.20  24.80  24.37  23.97  23.65  23.36  23.07  22.79
  NEW HOMES                        21.22  17.19  18.00  20.06  21.07  19.63  16.67  13.99  12.58  12.25  12.97  14.00  14.18  13.98
  TOTAL HOUSING STOCK       27.14  26.61  26.17  25.88  25.72  25.59  25.33  24.93  24.46  24.01  23.63  23.34  23.09  22.82  22.53


WATER HEATING
SATURATION (%)
  EXISTING HOMES                   11.75  11.98  12.22  12.53  12.81  12.90  12.86  12.73  12.60  12.52  12.52  12.57  12.57  12.54
  NEW HOMES                        19.51  15.94  16.79  18.62  19.56  18.27  15.68  13.17  11.89  11.60  12.27  13.21  13.39  13.21
  TOTAL HOUSING STOCK       12.20  12.07  12.14  12.40  12.78  13.02  13.07  12.94  12.74  12.58  12.49  12.52  12.59  12.59  12.56


COOKING
SATURATION (%)
  EXISTING HOMES                    4.40   4.30   4.30   4.32   4.29   4.23   4.21   4.13   4.05   4.02   4.06   4.11   4.13   4.15
  NEW HOMES                         3.13   2.85   3.14   3.42   3.44   3.24   3.38   3.05   2.80   2.85   3.24   3.65   3.92   4.06
  TOTAL HOUSING STOCK        4.50   4.35   4.24   4.26   4.28   4.27   4.20   4.19   4.10   4.01   3.99   4.04   4.09   4.13   4.14


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES                    1.03    .98    .98    .97    .95    .92    .90    .87    .84    .82    .83    .84    .84    .84
  NEW HOMES                          .33    .30    .33    .35    .34    .33    .40    .40    .38    .40    .48    .55    .63    .68
  TOTAL HOUSING STODR        1.00   1.00    .96    .95    .95    .94    .91    .89    .85    .82    .81    .82    .83    .83    .83


RESIDENTIAL
CUSTOMERS                    9.49   9.70   9.94  10.24  10.50  10.81  11.00  11.16  11.29  11.43  11.58  11.77  11.98  12.17  12.36

HOUSEHOLDS                  33434  34500  35601  36736  37908  38716  39540  40382  41243  42121  42947  43788  44647  45522  46414
(TEN-THOUSANDS)
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#37 -- ADDABBO - HEINZ SCENARIO                                                          FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR IDAHO

                           1996   1997   1998   1999   2000
                           ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----


SPACE HEATING
SATURATION (%)
  EXISTING HOMES          22.47  22.16  21.84  21.50  21.16
  NEW HOMES               13.35  12.80  12.30  11.65  10.98
  TOTAL HOUSING STOCK     22.21  21.89  21.56  21.22  20.86


WATER HEATING
SATURATION (%)
  EXISTING HOMES          12.[illegible]7  12.39  12.30  12.19  12.06
  NEW HOMES               12.55  12.14  11.68  11.09  10.47
  TOTAL HOUSING STOCK     12.48  12.38  12.28  12.16  12.01


COOKING
SATURATION (%)
  EXISTING HOMES           4 14   4.14   4 13   4.09   4.04
  NEW HOMES                4 08   4.06   4 03   3.77   3.50
  TOTAL HOUSING STOCK      4 14   4.13   4 12   4.08   4.02


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES            .83    .82    .82    .81    .79
  NEW HOMES                 .72    .75    .78    .74    .70
  TOTAL HOUSING STODR       .83    .82    .82    .80    .79


RESIDENTIAL
CUSTOMERS                 12.54  12.71  12.89  13.05  13.21

HOUSEHOLDS                47324  48251  49197  50161  51144
(TEN-THOUSANDS)

AVERAGE ANNUAL GROWTH RATE OF RESIDENTIAL CUSTOMERS, 1981-2000:   1.76%
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#37 -- ADDABBO - HEINZ SCENARIO                                                              FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR ILLINOIS


                                              ANNUAL SALES, SUPPLY AND PRICE OF GAS

                       GAS SALES                                                                 AVERAGE GAS PRICE
      ----------------------------------------------                                    ------------------------------      DEMAND
                                 INDUSTRIAL                                                      COMMERCIAL                WEIGHTED
                                    AND        TOTAL        GAS        ANNUAL                       AND                    AVERAGE
YEAR  RESIDENTIAL COMMERCIAL  ALL OTHER       SALES      SUPPLY      SUPPLY      RESIDENTIAL  ALL OTHER    INDUSTRIAL    PRICE
----  ----------  ----------  ----------  ----------  ----------    DEFICIT     ----------   ----------   ----------   ----------
                                                                   ----------
      --------------------( BCF )--------------------  ( BCF )     ( BCF )     --------------($/MMBTU IN $1981)--------------
1981    489.81      229.67      347.21     1066.70         .00         .00         3.82         3.54         3.36         3.61
1982    458.75      218.96      287.23      964.94         .00         .00         4.38         4.10         3.92         4.18
1983    457.52      215.41      275.82      948.75         .00         .00         4.51         4.23         4.05         4.31
1984    472.71      215.10      271.71      959.52         .00         .00         4.45         4.17         3.99         4.26
1985    496.92      217.55      275.00      989.47         .00         .00         4.29         4.01         3.83         4.10
1986    508.60      217.32      282.57     1008.50         .00         .00         4.30         4.02         3.84         4.11
1987    508.12      212.94      286.09     1007.16         .00         .00         4.53         4.25         4.07         4.34
1988    498.23      205.46      284.66      988.35         .00         .00         4.94         4.66         4.48         4.75
1989    489.52      197.66      280.43      967.61         .00         .00         5.39         5.11         4.93         5.20
1990    487.88      191.74      275.24      954.86         .00         .00         5.72         5.44         5.26         5.53
1991    495.05      188.31      271.66      955.02         .00         .00         5.88         5.60         5.42         5.69
1992    511.58      187.11      271.68      970.37         .00         .00         5.87         5.59         5.41         5.69
1993    527.92      186.61      276.28      990.82         .00         .00         5.82         5.54         5.36         5.64
1994    543.26      184.88      281.82     1009.96         .00         .00         5.90         5.62         5.44         5.72
1995    550.23      182.52      286.65     1019.39         .00         .00         6.04         5.76         5.58         5.86
1996    558.79      179.34      290.84     1028.97         .00         .00         6.27         5.99         5.81         6.09
1997    563.27      176.24      294.97     1034.48         .00         .00         6.50         6.22         6.04         6.32
1998    572.63      173.29      298.12     1044.04         .00         .00         6.73         6.45         6.27         6.55
1999    576.10      170.05      300.35     1046.50         .00         .00         7.00         6.72         6.54         6.82
2000    583.15      166.78      302.65     1052.59         .00         .00         7.29         7.01         6.83         7.11


ANNUAL RATES OF GROWTH
----------------------

1981-1985     .36%      -1.35%      -5.66%      -1.86%        .00%        .00%        2.94%        3.17%        3.33%        3.24%
1985-1990    -.37%      -2.49%        .02%       -.71%        .00%        .00%        5.92%        6.29%        6.55%        6.17%
1990-1995    2.43%       -.98%        .82%       1.32%        .00%        .00%        1.09%        1.15%        1.19%        1.16%
1995-2000    1.17%      -1.79%       1.09%        .64%        .00%        .00%        3.83%        4.01%        4.13%        3.95%
---------
1981-2000     .92%      -1.67%       -.72%       -.07%        .00%        .00%        3.46%        3.66%        3.80%        3.63%
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#37 -- ADDABBO - HEINZ SCENARIO                                                                     FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR ILLINOIS

                            1981   1982   1983   1984   1985   1986   1987   1988   1989   1990   1991   1992   1993   1994   1995
                            ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----


SPACE HEATING
SATURATION (%)
  EXISTING HOMES                  81.39  81.39  81.75  82.32  82.59  82.46  82.05  81.60  81.30  81.18  81.28  81.48  81.52  81.50
  NEW HOMES                       88.45  86.06  87.80  90.22  91.09  90.19  87.73  84.73  82.87  82.64  84.13  85.86  86.37  86.39
  TOTAL HOUSING STOCK    82.50  81.57  81.51  81.91  82.53  82.79  82.63  82.18  81.68  81.33  81.21  81.34  81.57  81.63  81.61


WATER HEATING
SATURATION (%)
  EXISTING HOMES                  77.57  77.38  78.52  80.24  80.83  80.16  78.75  77.34  76.50  76.28  76.76  77.43  77.57  77.48
  NEW HOMES                       89.08  86.97  88.62  90.85  91.66  90.87  88.68  86.02  84.39  84.22  85.57  87.13  87.60  87.64
  TOTAL HOUSING STOCK    80.99  77.87  77.63  78.78  80.52  81.08  80.41  78.98  77.53  76.68  76.45  76.95  77.64  77.79  77.70


COOKING
SATURATION (%)
  EXISTING HOMES                  66.74  66.06  66.97  68.33  68.31  67.60  65.93  64.41  63.00  62.34  62.41  61.53  61.92  60.25
  NEW HOMES                       48.69  48.02  50.96  54.65  55.02  53.83  49.73  46.28  42.96  42.13  43.20  40.91  43.24  38.35
  TOTAL HOUSING STOCK    68.47  66.26  65.59  66.55  67.97  68.00  67.29  65.56  63.99  62.54  61.90  61.99  61.08  61.52  59.77
 .


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES                  21.25  21.47  22.57  23.96  24.54  24.55  24.08  23.66  23.39  23.48  23.96  24.07  24.54  24.12
  NEW HOMES                       33.57  33.54  34.80  36.01  35.57  35.72  34.26  33.53  31.53  31.04  31.34  27.38  29.89  24.42
  TOTAL HOUSING STODR    22.40  21.58  21.78  22.89  24.28  24.79  24.81  24.32  23.89  23.58  23.64  24.12  24.14  24.65  24.13


RESIDENTIAL
CUSTOMERS               307.47 304.53 308.26 316.95 327.61 333.06 335.27 334.35 333.51 333.75 336.14 341.20 344.83 350.09 350.80

HOUSEHOLDS              411052 417916 424896 431991 439206 444959 450788 456693 462676 468737 474315 479959 485671 491450 497298
(TEN-THOUSANDS)
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#37 -- ADDABBO - HEINZ SCENARIO                                                    FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR ILLINOIS

                            1996   1997   1998   1999   2000
                            ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----


SPACE HEATING
SATURATION (%)
  EXISTING HOMES          81.37  81.25  81.12  80.95  80.77
  NEW HOMES               85.84  85.35  84.91  84.20  83.39
  TOTAL HOUSING STOCK     81.47  81.33  81.20  81.02  80.82


WATER HEATING
SATURATION (%)
  EXISTING HOMES          77.06  76.68  76.33  75.88  75.39
  NEW HOMES               87.17  86.75  86.36  85.78  85.08
  TOTAL HOUSING STOCK     77.28  76.90  76.55  76.09  75.60


COOKING
SATURATION (%)
  EXISTING HOMES          60.15  58.62  58.46  56.85  56.41
  NEW HOMES               39.59  35.61  36.68  32.58  32.89
  TOTAL HOUSING STOCK     59.70  58.12  57.99  56.33  55.90


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES          24.21  23.76  23.83  23.30  23.21
  NEW HOMES               26.78  22.94  24.96  21.06  22.40
  TOTAL HOUSING STODR     24.27  23.74  23.85  23.25  23.19


RESIDENTIAL
CUSTOMERS               354.12 354.52 357.83 357.84 360.25

HOUSEHOLDS              503216 509204 515264 521396 527600
(TEN-THOUSANDS)

AVERAGE ANNUAL GROWTH RATE OF RESIDENTIAL CUSTOMERS, 1981-2000:     .84%
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#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

GAS DEMAND MODEL FOR INDIANA

ANNUAL SALES, SUPPLY AND PRICE OF GAS

	GAS SALES						AVERAGE GAS PRICE			
YEAR	RESIDENTIAL	COMMERCIAL	INDUSTRIAL AND ALL OTHER	TOTAL SALES	GAS SUPPLY	ANNUAL SUPPLY DEFICIT	RESIDENTIAL	COMMERCIAL AND ALL OTHER	INDUSTRIAL	DEMAND WEIGHTED AVERAGE PRICE
	(BCF)				(BCF)	(BCF)	($/MMBTU IN $1981)			
1981	158.03	70.52	251.04	479.59	.00	.00	3.56	3.34	3.00	3.23
1982	149.05	66.99	207.32	423.36	.00	.00	4.12	3.90	3.56	3.81
1983	149.36	65.74	198.14	413.24	.00	.00	4.25	4.03	3.69	3.95
1984	154.81	65.54	194.52	414.87	.00	.00	4.19	3.97	3.63	3.89
1985	163.33	66.24	196.58	426.15	.00	.00	4.03	3.81	3.47	3.74
1986	167.70	66.09	201.77	435.56	.00	.00	4.04	3.82	3.48	3.75
1987	167.90	64.63	203.82	436.35	.00	.00	4.27	4.05	3.71	3.98
1988	164.84	62.15	202.07	429.07	.00	.00	4.68	4.46	4.12	4.38
1989	161.89	59.58	198.24	419.71	.00	.00	5.13	4.91	4.57	4.83
1990	161.13	57.61	193.83	412.57	.00	.00	5.46	5.24	4.90	5.17
1991	162.85	56.41	190.68	409.94	.00	.00	5.62	5.40	5.06	5.33
1992	167.61	55.90	190.21	413.72	.00	.00	5.61	5.39	5.05	5.32
1993	172.56	55.64	193.05	421.24	.00	.00	5.56	5.34	5.00	5.27
1994	176.89	54.98	196.62	428.50	.00	.00	5.64	5.42	5.08	5.35
1995	178.92	54.14	199.73	432.79	.00	.00	5.78	5.56	5.22	5.49
1996	181.07	53.05	202.36	436.48	.00	.00	6.01	5.79	5.45	5.72
1997	182.18	51.98	204.93	439.10	.00	.00	6.24	6.02	5.68	5.95
1998	184.54	50.96	206.83	442.33	.00	.00	6.47	6.25	5.91	6.18
1999	185.28	49.86	208.12	443.26	.00	.00	6.74	6.52	6.18	6.45
2000	186.85	48.74	209.46	445.05	.00	.00	7.03	6.81	6.47	6.74

ANNUAL RATES OF GROWTH

1981-1985	.83%	-1.55%	-5.93%	-2.91%	.00%	.00%	3.15%	3.35%	3.71%	3.68%
1985-1990	-.27%	-2.75%	-.28%	-.65%	.00%	.00%	6.26%	6.58%	7.15%	6.69%
1990-1995	2.12%	-1.23%	.60%	.96%	.00%	.00%	1.15%	1.19%	1.27%	1.24%
1995-2000	.87%	-2.08%	.96%	.56%	.00%	.00%	3.99%	4.14%	4.39%	4.18%
1981-2000	.89%	-1.93%	-.95%	-.39%	.00%	.00%	3.65%	3.82%	4.13%	3.94%

#37 -- ADDABBO - HEINZ SCENARIO

FRI, MAY 13, 1983, 3:37 PM

GAS DEMAND MODEL FOR INDIANA

	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
SPACE HEATING SATURATION (%)															
EXISTING HOMES		60.46	60.69	61.09	61.71	62.17	62.29	62.15	61.85	61.56	61.35	61.33	61.41	61.42	61.38
NEW HOMES		73.31	68.26	71.14	75.76	77.27	74.76	68.91	62.37	58.30	57.73	60.19	63.30	64.09	63.89
TOTAL HOUSING STOCK	61.33	60.84	60.92	61.39	62.13	62.57	62.62	62.32	61.87	61.48	61.27	61.31	61.45	61.48	61.44
WATER HEATING SATURATION (%)															
EXISTING HOMES		54.15	54.32	55.35	56.87	57.64	57.42	56.60	55.66	55.05	54.88	55.21	55.72	55.87	55.85
NEW HOMES		73.29	68.59	71.45	75.94	77.42	75.87	69.53	63.36	59.61	59.03	61.41	64.41	65.20	65.05
TOTAL HOUSING STOCK	56.67	54.73	54.75	55.84	57.45	58.16	57.88	56.93	55.87	55.17	54.97	55.35	55.92	56.08	56.06
COOKING SATURATION (%)															
EXISTING HOMES		41.66	41.43	42.20	43.32	43.58	43.33	42.42	41.56	40.75	40.41	40.57	40.12	40.46	39.47
NEW HOMES		39.79	39.07	41.94	45.68	46.04	44.72	40.49	37.03	33.04	33.03	34.01	31.96	34.04	29.61
TOTAL HOUSING STOCK	42.05	41.60	41.36	42.20	43.39	43.64	43.36	42.37	41.44	40.57	40.25	40.42	39.93	40.32	39.25
CLOTHES DRYING SATURATION (%)															
EXISTING HOMES		14.34	14.36	15.08	15.85	16.16	16.08	15.70	15.35	15.12	15.14	15.42	15.47	15.73	15.43
NEW HOMES		18.77	18.90	19.95	20.98	20.81	21.06	20.19	19.83	18.62	18.36	18.63	16.06	17.88	14.29
TOTAL HOUSING STODR	15.16	14.47	14.58	15.15	16.08	16.28	16.21	15.82	15.47	15.21	15.21	15.50	15.48	15.78	15.41
RESIDENTIAL CUSTOMERS	118.54	118.74	121.09	125.22	130.24	133.33	135.20	135.82	136.28	137.04	138.25	140.48	142.32	144.66	145.47
HOUSEHOLDS (TEN-THOUSANDS)	196700	200000	204976	209240	213592	217116	220699	224340	228042	231805	234810	237871	240963	244096	247269

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#37 -- ADDABBO - HEINZ SCENARIO                                                                 FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR INDIANA

                         1996   1997   1998   1999   2000
                         ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----


SPACE HEATING
SATURATION (%)
  EXISTING HOMES        61.25  61.11  60.95  60.74  60.49
  NEW HOMES             62.53  61.29  60.18  58.50  56.83
  TOTAL HOUSING STOCK   61.28  61.11  60.93  60.69  60.41


WATER HEATING
SATURATION (%)
  EXISTING HOMES        55.59  55.33  55.08  54.74  54.35
  NEW HOMES             63.79  62.65  61.63  60.14  58.51
  TOTAL HOUSING STOCK   55.70  55.50  55.23  54.86  54.44


COOKING
SATURATION (%)
  EXISTING HOMES        39.47  38.53  38.47  37.47  37.20
  NEW HOMES             30.65  27.11  27.99  24.43  24.65
  TOTAL HOUSING STOCK   39.27  38.27  38.23  37.17  36.92


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES        15.46  15.13  15.14  14.78  14.69
  NEW HOMES             15.87  13.46  14.82  12.39  13.30
  TOTAL HOUSING STODR   15.47  15.09  15.14  14.73  14.66


RESIDENTIAL
CUSTOMERS              147.00 147.69 149.24 149.65 150.81

HOUSEHOLDS             250483 253740 257038 260380 263765
(TEN-THOUSANDS)

AVERAGE ANNUAL GROWTH RATE OF RESIDENTIAL CUSTOMERS, 1981-2000:   1.20%
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#37 -- ADDABBO - HEINZ SCENARIO                                                              FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR IOWA


                                        ANNUAL SALES, SUPPLY AND PRICE OF GAS

                          GAS SALES                                                                  AVERAGE GAS PRICE
       ----------------------------------------------                                   ----------------------------------   DEMAND
                                  INDUSTRIAL                                 ANNUAL                  COMMERCIAL                WEIGHTED
                                     AND        TOTAL        GAS             SUPPLY                      AND                   AVERAGE
YEAR   RESIDENTIAL  COMMERCIAL   ALL OTHER      SALES       SUPPLY           DEFICIT    RESIDENTIAL  ALL OTHER   INDUSTRIAL   PRICE
----   ----------   ----------   ----------   ----------  ----------       ----------   ----------   ----------   ----------  ----------
       ---------------------( BCF )---------------------   ( BCF )          ( BCF )    --------------($/MMBTU IN $1981)--------------
1981       79.43       49.57       111.97       240.97         .00              .00        3.89         3.50         3.08        3.43
1982       75.61       47.09       107.20       229.30         .00              .00        4.45         4.06         3.64        3.99
1983       74.68       46.20       104.83       225.71         .00              .00        4.58         4.19         3.77        4.12
1984       76.61       46.01       103.29       225.91         .00              .00        4.52         4.13         3.71        4.07
1985       80.67       46.44       102.87       229.98         .00              .00        4.36         3.97         3.55        3.92
1986       82.47       46.31       103.75       232.53         .00              .00        4.37         3.98         3.56        3.93
1987       82.38       45.28       104.73       232.39         .00              .00        4.60         4.21         3.79        4.16
1988       80.94       43.58       105.61       230.13         .00              .00        5.01         4.62         4.20        4.56
1989       79.49       41.82       106.09       227.41         .00              .00        5.46         5.07         4.65        5.01
1990       79.09       40.47       106.18       225.74         .00              .00        5.79         5.40         4.98        5.34
1991       79.88       39.65       106.00       225.53         .00              .00        5.95         5.56         5.14        5.50
1992       81.80       39.30       105.94       227.05         .00              .00        5.94         5.55         5.13        5.49
1993       84.15       39.11       106.52       229.78         .00              .00        5.89         5.50         5.08        5.45
1994       85.66       38.64       107.61       231.91         .00              .00        5.97         5.58         5.16        5.53
1995       86.70       38.05       108.97       233.72         .00              .00        6.11         5.72         5.30        5.67
1996       87.26       37.28       110.44       234.98         .00              .00        6.34         5.95         5.53        5.90
1997       87.87       36.53       111.92       236.32         .00              .00        6.57         6.18         5.76        6.13
1998       88.54       35.81       113.30       237.65         .00              .00        6.80         6.41         5.99        6.36
1999       88.98       35.63       114.76       238.77         .00              .00        7.07         6.68         6.26        6.62
2000       89.34       34.25       116.16       239.75         .00              .00        7.36         6.97         6.55        6.91


ANNUAL RATES OF GROWTH
----------------------

1981-1985     .39%      -1.62%       -2.10%       -1.16%        .00%             .00%       2.89%        3.20%        3.61%       3.36%
1985-1990    -.40%      -2.71%         .63%        -.37%        .00%             .00%       5.84%        6.35%        7.00%       6.38%
1990-1995    1.86%      -1.23%         .52%         .70%        .00%             .00%       1.08%        1.16%        1.25%       1.21%
1995-2000     .60%      -2.09%        1.29%         .51%        .00%             .00%       3.79%        4.03%        4.33%       4.04%
---------
1981-2000     .62%      -1.93%         .19%        -.03%        .00%             .00%       3.41%        3.69%        4.05%       3.75%
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#37 -- ADDABBO - HEINZ SCENARIO                                                                     FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR IOWA

                           1981   1982   1983   1984   1985   1986   1987   1988   1989   1990   1991   1992   1993   1994   1995
                           ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----


SPACE HEATING
SATURATION (%)
  EXISTING HOMES                 65.86  65.83  66.02  66.43  66.67  66.63  66.34  65.92  65.52  65.22  65.13  65.13  65.07  64.96
  NEW HOMES                      70.03  65.42  68.86  73.93  75.61  73.39  68.02  62.07  58.54  58.09  60.58  63.67  64.58  64.55
  TOTAL HOUSING STOCK     66.74  65.96  65.82  66.09  66.62  66.89  66.80  66.38  65.82  65.34  65.06  65.03  65.10  65.06  64.95


WATER HEATING
SATURATION (%)
  EXISTING HOMES                 57.18  57.18  58.08  59.47  60.05  59.76  58.87  57.89  57.24  57.01  57.30  57.77  57.89  57.85
  NEW HOMES                      69.62  65.34  68.78  73.77  75.43  73.34  68.22  62.57  59.24  56.86  61.28  64.28  65.19  65.20
  TOTAL HOUSING STOCK     59.64  57.49  57.39  58.35  59.83  60.44  60.10  59.11  58.01  57.29  57.06  57.39  57.92  58.05  58.01


COOKING
SATURATION (%)
  EXISTING HOMES                 34.97  34.79  35.25  37.45  37.53  37.17  36.46  35.76  35.18  35.16  35.13  35.11  34.87  34.37
  NEW HOMES                      37.46  35.94  37.16  45.79  44.50  41.46  37.18  33.60  30.95  31.28  31.05  30.84  29.84  27.59
  TOTAL HOUSING STOCK     35.62  35.04  34.82  35.30  37.66  37.71  37.27  36.48  35.70  35.08  35.07  35.03  35.01  34.76  34.21


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES                 15.77  15.62  16.01  17.39  17.45  17.11  16.56  16.04  15.67  15.64  15.70  15.78  15.66  15.39
  NEW HOMES                      15.03  14.34  14.02  18.52  17.07  15.84  14.69  13.98  13.10  13.65  12.97  12.13  11.32   9.90
  TOTAL HOUSING STODR     16.52  15.76  15.59  15.96  17.42  17.44  17.08  16.51  15.98  15.60  15.59  15.64  15.69  15.57  15.26


RESIDENTIAL
CUSTOMERS                 69.68  69.66  70.59  72.30  75.15  76.64  77.50  77.87  78.15  78.64  79.43  80.50  81.70  82.62  83.32

HOUSEHOLDS               106985 108697 110436 112203 113998 115788 117606 119452 121327 123232 124785 126357 127949 129562 131194
(TEN-THOUSANDS)
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#37 -- ADDABBO - HEINZ SCENARIO                                                        FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR IOWA

                         1996   1997   1998   1999   2000
                         ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----


SPACE HEATING
SATURATION (%)
  EXISTING HOMES        64.78  64.58  64.37  64.12  63.83
  NEW HOMES             63.44  62.45  61.57  60.23  58.75
  TOTAL HOUSING STOCK   64.75  64.53  64.30  64.03  63.72


WATER HEATING
SATURATION (%)
  EXISTING HOMES        57.57  57.29  57.03  56.68  56.29
  NEW HOMES             64.18  63.27  62.46  61.22  59.83
  TOTAL HOUSING STOCK   57.71  57.43  57.15  56.78  56.37


COOKING
SATURATION (%)
  EXISTING HOMES        33.88  33.38  32.87  32.28  31.66
  NEW HOMES             25.89  24.31  22.83  21.13  19.47
  TOTAL HOUSING STOCK   33.70  33.18  32.65  32.03  31.39


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES        15.08  14.77  14.47  14.12  13.76
  NEW HOMES              9.20   8.54   7.93   7.24   6.59
  TOTAL HOUSING STODR   14.95  14.63  14.33  13.97  13.60


RESIDENTIAL
CUSTOMERS               83.90  84.48  85.06  85.54  85.96

HOUSEHOLDS             132847 134521 136216 137932 139670
(TEN-THOUSANDS)

AVERAGE ANNUAL GROWTH RATE OF RESIDENTIAL CUSTOMERS, 1981-2000:   1.11%
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#37 -- ADDABBO - HEINZ SCENARIO                                                        FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR KANSAS


                                          ANNUAL SALES, SUPPLY AND PRICE OF GAS

                             GAS SALES                                                        AVERAGE GAS PRICE
          -------------------------------------------                             -------------------------------     DEMAND
                                  INDUSTRIAL                           ANNUAL                  COMMERCIAL                 WEIGHTED
                                     AND        TOTAL        GAS       SUPPLY                     AND                     AVERAGE
YEAR     RESIDENTIAL COMMERCIAL  ALL OTHER     SALES       SUPPLY     DEFICIT    RESIDENTIAL  ALL OTHER    INDUSTRIAL     PRICE
----      ---------- ----------  ----------  ----------  ----------  ----------  ----------  ----------  ----------  ----------
          ------------------( BCF )-------------------   ( BCF )     ( BCF )    --------------($/MMBTU IN $1981)--------------
1981         76.01      48.19      126.17      250.37         .00         .00        2.94        2.53        2.83        2.81
1982         71.06      45.00      115.52      231.58         .00         .00        3.50        3.09        3.39        3.37
1983         71.21      43.89      109.90      225.00         .00         .00        3.63        3.22        3.52        3.50
1984         73.90      43.61      106.52      224.03         .00         .00        3.57        3.16        3.46        3.44
1985         78.86      44.06      106.40      229.32         .00         .00        3.41        3.00        3.30        3.28
1986         80.99      43.77      107.82      232.58         .00         .00        3.42        3.01        3.31        3.29
1987         80.79      42.39      108.28      231.46         .00         .00        3.65        3.24        3.54        3.52
1988         79.10      40.27      107.27      226.64         .00         .00        4.06        3.65        3.95        3.94
1989         77.60      38.16      105.18      220.95         .00         .00        4.51        4.10        4.40        4.39
1990         77.44      36.58      102.88      216.91         .00         .00        4.84        4.43        4.73        4.72
1991         78.67      35.61      100.93      215.22         .00         .00        5.00        4.59        4.89        4.88
1992         81.27      35.14       99.94      216.34         .00         .00        4.99        4.58        4.88        4.87
1993         84.33      34.82      100.24      219.39         .00         .00        4.94        4.53        4.83        4.82
1994         86.37      34.20      101.08      221.65         .00         .00        5.02        4.61        4.91        4.91
1995         87.87      33.44      101.99      223.30         .00         .00        5.16        4.75        5.05        5.05
1996         88.75      32.51      102.96      224.22         .00         .00        5.39        4.98        5.28        5.28
1997         89.71      31.62      103.82      225.16         .00         .00        5.62        5.21        5.51        5.51
1998         90.75      30.76      104.55      226.06         .00         .00        5.85        5.44        5.74        5.74
1999         91.52      29.86      105.29      226.67         .00         .00        6.12        5.71        6.01        6.01
2000         92.21      28.98      105.94      227.12         .00         .00        6.41        6.00        6.30        6.31


ANNUAL RATES OF GROWTH
----------------------

1981-1985      .93%     -2.22%      -4.17%      -2.17%        .00%        .00%       3.78%       4.35%       3.92%       3.98%
1985-1990    -.36%     -3.65%       -.67%      -1.11%        .00%        .00%       7.26%       8.11%       7.47%       7.54%
1990-1995     2.56%     -1.78%       -.17%        .58%        .00%        .00%       1.29%       1.40%       1.32%       1.36%
1995-2000      .97%     -2.83%        .76%        .34%        .00%        .00%       4.43%       4.78%       4.52%       4.55%
---------
1981-2000     1.02%     -2.64%       -.92%       -.51%        .00%        .00%       4.19%       4.65%       4.30%       4.35%
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#37 -- ADDABBO - HEINZ SCENARIO                                                                           FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR KANSAS

                            1981   1982   1983   1984   1985   1986   1987   1988   1989   1990   1991   1992   1993   1994   1995
                            ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----

SPACE HEATING
SATURATION (%)
  EXISTING HOMES                   79.95  80.11  80.70  81.54  81.97  81.88  81.47  81.03  80.76  80.71  80.91  81.20  81.30  81.31
  NEW HOMES                        93.48  91.67  92.75  94.37  94.79  93.85  91.48  88.38  86.16  85.65  86.86  88.35  88.62  88.41
  TOTAL HOUSING STOCK      81.26   80.35  80.45  81.06  81.92  82.30  82.19  81.73  81.22  80.90  80.83  81.04  81.36  81.46  81.47


WATER HEATING
SATURATION (%)
  EXISTING HOMES                   76.03  75.88  77.20  79.41  80.13  79.29  77.62  76.00  75.06  74.89  75.49  76.31  76.49  76.41
  NEW HOMES                        93.37  91.67  92.74  94.33  94.76  93.85  91.61  88.70  86.64  86.19  87.34  88.74  89.02  88.83
  TOTAL HOUSING STOCK      79.98   76.54  76.34  77.73  79.85  80.50  79.67  77.98  76.33  75.36  75.15  75.76  76.59  76.78  76.69


COOKING
SATURATION (%)
  EXISTING HOMES                   37.03  37.12  38.00  40.87  41.32  41.07  40.37  39.67  39.15  39.28  39.42  39.60  39.48  39.03
  NEW HOMES                        52.63  50.68  52.14  61.27  60.01  56.42  51.07  46.35  42.85  43.01  42.76  42.59  41.33  38.52
  TOTAL HOUSING STOCK      38.07   37.49  37.52  38.41  41.47  41.81  41.46  40.64  39.84  39.24  39.37  39.50  39.66  39.52  39.02


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES                   10.82  11.30  12.21  13.98  14.68  14.86  14.78  14.71  14.77  15.17  15.64  16.12  16.36  16.38
  NEW HOMES                        32.25  31.44  31.18  37.42  35.73  34.17  32.59  31.57  30.23  31.16  30.08  28.70  27.30  24.69
  TOTAL HOUSING STODR      11.47   11.45  11.89  12.77  14.67  15.23  15.36  15.24  15.14  15.17  15.53  15.97  16.41  16.60  16.57


RESIDENTIAL
CUSTOMERS                  66.93   67.04  68.40  70.63  74.00  75.63  76.50  76.86  77.20  77.86  78.84  80.17  81.63  82.73  83.57

HOUSEHOLDS                 88944   90723  92537  94388  96276  97836  99420 101031 102668 104331 105677 107040 108421 109820 111236
(TEN-THOUSANDS)
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#37 -- ADDABBO - HEINZ SCENARIO                                                      FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR KANSAS

                           1996   1997   1998   1999   2000
                           ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----


SPACE HEATING
SATURATION (%)
  EXISTING HOMES          81.20  81.09  80.97  80.80  80.61
  NEW HOMES               87.59  86.61  86.07  85.03  83.07
  TOTAL HOUSING STOCK     81.35  81.22  81.09  80.90  80.60


WATER HEATING
SATURATION (%)
  EXISTING HOMES          75.96  75.55  75.17  74.60  74.16
  NEW HOMES               88.09  87.30  86.71  85.77  84.71
  TOTAL HOUSING STOCK     76.24  75.82  75.43  74.93  74.39


COOKING
SATURATION (%)
  EXISTING HOMES          38.57  38.09  37.60  36.99  36.34
  NEW HOMES               36.22  34.06  32.84  29.69  27.40
  TOTAL HOUSING STOCK     38.51  38.00  37.47  36.82  36.14


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES          16.32  16.25  16.16  15.99  15.79
  NEW HOMES               23.33  22.00  20.70  19.21  17.76
  TOTAL HOUSING STODR     16.40  16.36  16.26  16.06  15.83


RESIDENTIAL
CUSTOMERS                 84.26  84.95  85.66  86.25  86.80

HOUSEHOLDS               112671 114125 115597 117088 118599
(TEN-THOUSANDS)

AVERAGE ANNUAL GROWTH RATE OF RESIDENTIAL CUSTOMERS, 1981-2000:   1.38%
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#37 -- ADDABBO - HEINZ SCENARIO                                                              FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR KENTUCKY


                                                  ANNUAL SALES, SUPPLY AND PRICE OF GAS

                         GAS SALES                                                                  AVERAGE GAS PRICE
        -------------------------------------------------                                 ------------------------------------      DEMAND
                                          INDUSTRIAL                              ANNUAL                  COMMERCIAL                 WEIGHTED
                                             AND         TOTAL        GAS         SUPPLY                     AND                     AVERAGE
 YEAR   RESIDENTIAL  COMMERCIAL          ALL OTHER       SALES       SUPPLY      DEFICIT     RESIDENTIAL  ALL OTHER    INDUSTRIAL     PRICE
 ----   ----------   ----------         ----------   ----------   ----------   ----------    ----------   ----------   ----------   ----------
        --------------------( BCF )--------------------   (  BCF )     (  BCF )      ---------------($/MMBTU IN $1981)--------------
 1981      71.10        35.47             62.90        169.55          .00          .00          3.50         3.39         3.07         3.32
 1982      66.81        33.66             51.73        152.20          .00          .00          4.06         3.95         3.63         3.89
 1983      66.31        33.01             49.87        149.18          .00          .00          4.19         4.00         3.76         4.02
 1984      68.02        32.89             49.28        150.19          .00          .00          4.13         4.02         3.70         3.96
 1985      70.90        33.20             49.99        154.09          .00          .00          3.97         3.86         3.54         3.81
 1986      72.15        33.09             51.45        156.69          .00          .00          3.98         3.87         3.55         3.82
 1987      71.34        32.31             52.16        155.81          .00          .00          4.21         4.10         3.78         4.04
 1988      69.44        31.05             52.00        152.49          .00          .00          4.62         4.51         4.19         4.45
 1989      67.45        29.74             51.31        148.51          .00          .00          5.07         4.96         4.64         4.90
 1990      66.50        28.74             50.44        145.68          .00          .00          5.40         5.29         4.97         5.23
 1991      66.48        28.11             49.86        144.45          .00          .00          5.56         5.45         5.13         5.39
 1992      67.78        27.84             49.93        145.55          .00          .00          5.55         5.44         5.12         5.38
 1993      69.02        27.67             50.80        147.49          .00          .00          5.50         5.39         5.07         5.33
 1994      70.84        27.31             51.08        149.23          .00          .00          5.58         5.47         5.15         5.41
 1995      70.89        26.86             52.00        149.75          .00          .00          5.72         5.61         5.29         5.55
 1996      70.20        26.28             53.62        150.11          .00          .00          5.95         5.84         5.52         5.78
 1997      69.86        25.71             54.44        150.01          .00          .00          6.18         6.07         5.75         6.01
 1998      70.04        25.16             55.03        150.23          .00          .00          6.41         6.30         5.98         6.23
 1999      69.54        24.57             55.49        149.60          .00          .00          6.68         6.57         6.25         6.50
 2000      69.39        23.98             55.98        149.36          .00          .00          6.97         6.86         6.54         6.79


ANNUAL RATES OF GROWTH
----------------------

1981-1985     -.10%       -1.64%          -5.58%        -2.36%         .00%         .00%         3.20%        3.30%        3.63%        3.50%
1985-1990    -1.27%       -2.84%            .18%        -1.11%         .00%         .00%         6.35%        6.51%        7.02%        6.56%
1990-1995     1.05%       -1.34%            .92%          .55%         .00%         .00%         1.16%        1.18%        1.26%        1.19%
1995-2000     -.20%       -2.24%           1.10%         -.05%         .00%         .00%         4.03%        4.11%        4.33%        4.12%
---------
1981-2000     -.13%       -2.04%           -.61%         -.67%         .00%         .00%         3.69%        3.70%        4.06%        3.84%
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#37 -- ADDABBO - HEINZ SCENARIO                                                          FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR KENTUCKY

                             1981   1982   1983   1984   1985   1986   1987   1988   1989   1990   1991   1992   1993   1994   1995
                             ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----


SPACE HEATING
SATURATION (%)
  EXISTING HOMES                   50.58  50.06  49.63  49.41  49.16  48.77  48.13  47.32  46.49  45.72  45.16  44.68  44.17  43.63
  NEW HOMES                        39.47  33.34  36.02  41.24  43.05  39.40  32.40  26.11  22.79  22.06  23.61  25.81  26.19  25.74
  TOTAL HOUSING STOCK       51.33  50.20  49.50  49.17  49.13  48.99  48.51  47.69  46.73  45.83  45.12  44.61  44.20  43.71  43.18


WATER HEATING
SATURATION (%)
  EXISTING HOMES                   42.07  41.35  41.23  41.52  41.35  40.61  39.43  38.14  37.07  36.31  35.95  35.71  35.26  34.71
  NEW HOMES                        31.17  26.09  28.43  33.02  34.66  31.49  25.56  20.41  17.77  17.21  18.47  20.27  20.60  20.25
  TOTAL HOUSING STOCK       44.08  41.70  40.83  40.80  41.23  41.16  40.36  39.04  37.65  36.53  35.82  35.50  35.32  34.88  34.35


COOKING
SATURATION (%)
  EXISTING HOMES                   27.22  27.00  27.49  28.00  28.30  27.94  27.60  27.11  26.80  26.53  26.80  26.48  26.82  26.19
  NEW HOMES                        27.97  26.62  28.84  30.69  31.61  28.79  27.18  24.77  23.65  22.59  24.25  22.39  24.62  21.03
  TOTAL HOUSING STOCK       27.76  27.24  26.98  27.53  28.09  28.39  27.96  27.59  27.04  26.71  26.43  26.73  26.38  26.77  26.06


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES                    5.06   5.15   5.46   5.81   6.03   6.02   5.97   5.92   5.95   6.02   6.25   6.34   6.54   6.49
  NEW HOMES                         9.88   9.59  10.23  10.16  10.43   9.63  10.27  10.36  10.62  10.21  11.10   9.28  10.89   8.60
  TOTAL HOUSING STODR        5.32   5.22   5.30   5.62   5.95   6.15   6.12   6.09   6.04   6.08   6.13   6.37   6.42   6.65   6.55


RESIDENTIAL
CUSTOMERS                   58.63  58.52  59.20  60.77  62.71  63.94  64.34  64.40  64.23  64.29  64.46  65.25  65.75  66.57  66.63

HOUSEHOLDS                 129509 132695 135960 139304 142731 145372 148061 150900 153590 156432 158903 161414 163964 166555 169187
(TEN-THOUSANDS)
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#37 -- ADDABBO - HEINZ SCENARIO                                                           FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR KENTUCKY

                          1996    1997    1998    1999    2000
                          ----    ----    ----    ----    ----    ----    ----    ----    ----    ----    ----    ----    ----    ----    ----

SPACE HEATING
SATURATION (%)
  EXISTING HOMES         43.04   42.44   41.83   41.19   40.53
  NEW HOMES              24.36   23.14   22.06   20.69   19.30
  TOTAL HOUSING STOCK    42.57   41.95   41.32   40.67   39.99


WATER HEATING
SATURATION (%)
  EXISTING HOMES         34.03   33.36   32.70   31.99   31.27
  NEW HOMES              19.15   18.17   17.32   16.24   15.15
  TOTAL HOUSING STOCK    33.65   32.97   32.30   31.59   30.86


COOKING
SATURATION (%)
  EXISTING HOMES         26.28   25.65   25.68   25.00   24.87
  NEW HOMES              22.29   19.30   20.37   17.41   17.83
  TOTAL HOUSING STOCK    26.18   25.49   25.55   24.81   24.69


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES          6.58    6.51    6.58    6.49    6.51
  NEW HOMES              10.04    8.36    9.63    7.92    8.91
  TOTAL HOUSING STODR     6.66    6.55    6.66    6.53    6.57


RESIDENTIAL
CUSTOMERS                67.09   67.02   67.44   67.26   67.47

HOUSEHOLDS              171860  174575  177333  180135  182981
(TEN-THOUSANDS)

AVERAGE ANNUAL GROWTH RATE OF RESIDENTIAL CUSTOMERS, 1981-2000:     .74%
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#37 -- ADDABBO - HEINZ SCENARIO                                                              FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR LOUIS.


                                                ANNUAL SALES, SUPPLY AND PRICE OF GAS

                             GAS SALES                                                          AVERAGE GAS PRICE
           ---------------------------------------------                             ---------------------------------          DEMAND
                                         INDUSTRIAL                              ANNUAL               COMMERCIAL                 WEIGHTED
                                            AND         TOTAL        GAS         SUPPLY                  AND                      AVERAGE
 YEAR    RESIDENTIAL  COMMERCIAL       ALL OTHER       SALES       SUPPLY       DEFICIT    RESIDENTIAL  ALL OTHER   INDUSTRIAL     PRICE
 ----    -----------  ----------      ----------   ----------   ----------   ----------   ----------   ----------   ----------   ----------
         ---------------------( BCF )---------------------    ( BCF )      ( BCF )     ---------------($/MMBTU IN $1981)---------------
 1981        72.44       35.75          972.96      1081.14          .00          .00         3.72         3.40         2.77         2.85
 1982        68.64       34.08          883.92       986.64          .00          .00         4.28         3.96         3.33         3.42
 1983        69.04       33.59          840.10       942.72          .00          .00         4.41         4.09         3.46         3.55
 1984        71.78       33.62          814.32       919.72          .00          .00         4.35         4.03         3.40         3.50
 1985        75.96       34.09          810.00       920.05          .00          .00         4.19         3.87         3.24         3.34
 1986        78.36       34.12          819.07       931.55          .00          .00         4.20         3.88         3.25         3.35
 1987        78.68       33.48          819.04       931.19          .00          .00         4.43         4.11         3.48         3.58
 1988        77.67       32.32          806.34       916.33          .00          .00         4.84         4.52         3.89         3.99
 1989        76.70       31.11          785.30       893.10          .00          .00         5.29         4.97         4.34         4.44
 1990        76.83       30.20          762.73       869.76          .00          .00         5.62         5.30         4.67         4.78
 1991        78.04       29.66          744.20       851.90          .00          .00         5.78         5.46         4.83         4.94
 1992        80.68       29.49          733.36       843.53          .00          .00         5.77         5.45         4.82         4.93
 1993        83.23       29.43          730.70       843.35          .00          .00         5.72         5.40         4.77         4.89
 1994        85.95       29.17          734.56       849.69          .00          .00         5.80         5.48         4.85         4.97
 1995        87.20       28.82          736.00       852.02          .00          .00         5.94         5.62         4.99         5.11
 1996        88.85       28.32          740.83       857.99          .00          .00         6.17         5.85         5.22         5.34
 1997        89.61       27.84          741.76       859.22          .00          .00         6.40         6.08         5.45         5.57
 1998        91.42       27.37          744.07       862.86          .00          .00         6.63         6.31         5.68         5.80
 1999        92.04       26.87          743.48       862.39          .00          .00         6.90         6.58         5.95         6.07
 2000        93.41       26.35          744.23       863.99          .00          .00         7.19         6.87         6.24         6.36


ANNUAL RATES OF GROWTH
----------------------

1981-1985     1.19%      -1.18%        -4.48%       -3.95%         .00%         .00%        3.02%        3.29%        4.00%        4.02%
1985-1990      .23%      -2.40%        -1.20%       -1.12%         .00%         .00%        6.05%        6.49%        7.59%        7.40%
1990-1995     2.56%       -.93%         -.71%        -.41%         .00%         .00%        1.11%        1.18%        1.33%        1.36%
1995-2000     1.38%      -1.77%          .22%         .28%         .00%         .00%        3.89%        4.10%        4.57%        4.49%
---------
1981-2000     1.35%      -1.59%        -1.40%       -1.17%         .00%         .00%        3.53%        3.77%        4.37%        4.31%
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837 -- ADDABBO - HEINZ SCENARIO                                                            FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR LOUIS.

                          1981   1982   1983   1984   1985   1986   1987   1988   1989   1990   1991   1992   1993   1994   1995
                          ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----

SPACE HEATING
SATURATION (%)
  EXISTING HOMES                67.65  67.86  68.26  68.88  69.30  69.35  69.13  68.76  68.40  68.14  68.09  68.15  68.11  68.03
  NEW HOMES                     79.30  74.78  76.93  80.51  81.59  79.34  74.17  68.18  64.30  63.65  65.85  68.62  69.29  69.06
  TOTAL HOUSING STOCK    68.61  68.04  68.09  68.55  69.27  69.66  69.65  69.28  68.74  68.28  68.03  68.04  68.16  68.14  68.06


WATER HEATING
SATURATION (%)
  EXISTING HOMES                64.46  64.25  65.04  66.36  66.84  66.27  65.03  63.69  62.71  62.25  62.38  62.72  62.65  62.41
  NEW HOMES                     74.11  69.24  71.69  75.74  76.99  74.49  68.85  62.56  58.61  57.98  60.27  63.17  63.89  63.69
  TOTAL HOUSING STOCK    67.42  64.78  64.42  65.26  66.68  67.13  66.51  65.14  63.66  62.59  62.15  62.33  62.73  62.68  62.45


COOKING
SATURATION (%)
  EXISTING HOMES                58.89  58.41  59.04  60.03  61.17  59.25  57.88  56.52  55.42  54.85  54.86  53.79  54.44  52.90
  NEW HOMES                     42.11  42.67  45.65  49.25  51.54  48.51  45.25  42.18  39.96  39.46  40.36  36.93  40.35  35.24
  TOTAL HOUSING STOCK    59.87  58.33  57.88  58.59  59.67  59.89  58.94  57.51  56.10  54.97  54.48  54.51  53.39  54.11  52.47


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES                13.63  14.22  15.36  16.68  17.54  17.79  17.81  17.83  18.03  18.50  19.16  19.41  20.20  20.10
  NEW HOMES                     32.54  33.66  34.84  35.78  36.36  36.27  36.32  36.48  36.40  36.55  36.81  33.61  36.35  32.54
  TOTAL HOUSING STODR    14.29  14.26  14.88  16.01  17.32  18.09  18.33  18.35  18.38  18.56  18.93  19.58  19.75  20.59  20.40


RESIDENTIAL
CUSTOMERS                98.48  98.81 100.92 104.45 108.69 111.42 112.80 113.36 113.75 114.52 115.52 117.32 118.50 120.73 121.13

HOUSEHOLDS              144557 148099 151727 155444 159253 162390 165589 168851 172178 175569 178080 180627 183210 185830 188487
(TEN-THOUSANDS)
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#37 -- ADDABBO - HEINZ SCENARIO                                                              FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR LOUIS.

                          1996   1997   1998   1999   2000
                          ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----


SPACE HEATING
SATURATION (%)
  EXISTING HOMES         67.06  67.66  67.45  67.20  66.90
  NEW HOMES              67.70  66.61  65.53  64.00  62.31
  TOTAL HOUSING STOCK    67.05  67.64  67.41  67.12  66.79


WATER HEATING
SATURATION (%)
  EXISTING HOMES         61.92  61.43  60.95  60.30  59.77
  NEW HOMES              62.39  61.21  60.14  58.61  56.93
  TOTAL HOUSING STOCK    61.93  61.42  60.93  60.34  59.70


COOKING
SATURATION (%)
  EXISTING HOMES         53.01  51.43  51.53  49.96  49.73
  NEW HOMES              37.24  32.39  34.43  29.81  30.84
  TOTAL HOUSING STOCK    52.63  50.97  51.13  49.48  49.28


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES         20.55  20.36  20.81  20.57  20.85
  NEW HOMES              35.17  31.54  34.32  30.67  32.84
  TOTAL HOUSING STODR    20.90  20.62  21.13  20.81  21.13


RESIDENTIAL
CUSTOMERS               122.64 122.79 124.31 124.35 125.45

HOUSEHOLDS              191182 193916 196689 199502 202355
(TEN-THOUSANDS)

AVERAGE ANNUAL GROWTH RATE OF RESIDENTIAL CUSTOMERS, 1981-2000:   1.28%
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#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

GAS DEMAND MODEL FOR MAINE

ANNUAL SALES, SUPPLY AND PRICE OF GAS

	GAS SALES						AVERAGE GAS PRICE			
YEAR	RESIDENTIAL	COMMERCIAL	INDUSTRIAL AND ALL OTHER	TOTAL SALES	GAS SUPPLY	ANNUAL SUPPLY DEFICIT	RESIDENTIAL	COMMERCIAL AND ALL OTHER	INDUSTRIAL	DEMAND WEIGHTED AVERAGE PRICE
	(BCF)				(BCF)	(BCF)	($/MMBTU IN $1981)			
1981	.57	1.04	.70	2.31	.00	.00	7.43	6.00	5.33	6.15
1982	.56	1.01	.64	2.21	.00	.00	7.99	6.56	5.89	6.73
1983	.57	.99	.63	2.19	.00	.00	8.12	6.69	6.02	6.87
1984	.59	.99	.63	2.21	.00	.00	8.06	6.63	5.96	6.82
1985	.62	1.00	.63	2.25	.00	.00	7.90	6.47	5.80	6.68
1986	.65	1.00	.64	2.28	.00	.00	7.91	6.48	5.81	6.70
1987	.67	.99	.65	2.31	.00	.00	8.14	6.71	6.04	6.94
1988	.68	.96	.66	2.30	.00	.00	8.55	7.12	6.45	7.35
1989	.69	.94	.66	2.29	.00	.00	9.00	7.57	6.90	7.80
1990	.70	.92	.67	2.29	.00	.00	9.33	7.90	7.23	8.14
1991	.72	.91	.67	2.30	.00	.00	9.49	8.06	7.39	8.31
1992	.74	.91	.68	2.33	.00	.00	9.48	8.05	7.38	8.31
1993	.77	.91	.69	2.37	.00	.00	9.43	8.00	7.33	8.27
1994	.79	.90	.70	2.40	.00	.00	9.51	8.08	7.41	8.36
1995	.81	.90	.72	2.43	.00	.00	9.65	8.22	7.55	8.50
1996	.83	.89	.73	2.45	.00	.00	9.88	8.45	7.78	8.74
1997	.85	.88	.74	2.47	.00	.00	10.11	8.68	8.01	8.97
1998	.87	.87	.75	2.49	.00	.00	10.34	8.91	8.24	9.21
1999	.89	.86	.76	2.51	.00	.00	10.61	9.18	8.51	9.48
2000	.91	.85	.78	2.53	.00	.00	10.90	9.47	8.80	9.78

ANNUAL RATES OF GROWTH

1981-1985	2.89%	-1.00%	-2.55%	-.65%	.00%	.00%	1.55%	1.90%	2.14%	2.07%
1985-1990	2.31%	-1.57%	1.33%	.37%	.00%	.00%	3.38%	4.07%	4.51%	4.03%
1990-1995	3.07%	-.53%	1.31%	1.15%	.00%	.00%	.68%	.80%	.87%	.87%
1995-2000	2.23%	-1.04%	1.61%	.80%	.00%	.00%	2.47%	2.87%	3.11%	2.84%
1981-2000	2.44%	-1.03%	.57%	.49%	.00%	.00%	2.04%	2.43%	2.67%	2.47%

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837 -- ADDABBO - HEINZ SCENARIO                                                               FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR MAINE

                          1981   1982   1983   1984   1985   1986   1987   1988   1989   1990   1991   1992   1993   1994   1995
                          ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----


SPACE HEATING
SATURATION (%)
  EXISTING HOMES                 1.51   1.56   1.59   1.63   1.68   1.74   1.78   1.81   1.83   1.84   1.85   1.87   1.89   1.92
  NEW HOMES                      3.11   2.61   2.90   3.38   3.58   3.40   2.96   2.56   2.35   2.34   2.50   2.72   2.80   2.81
  TOTAL HOUSING STOCK     1.53   1.56   1.59   1.63   1.68   1.74   1.79   1.82   1.83   1.84   1.85   1.87   1.90   1.92   1.94


WATER HEATING
SATURATION (%)
  EXISTING HOMES                 2.79   2.78   2.79   2.81   2.81   2.80   2.76   2.72   2.68   2.65   2.64   2.63   2.62   2.60
  NEW HOMES                      2.50   2.12   2.36   2.74   2.90   2.75   2.41   2.09   1.92   1.91   2.04   2.21   2.28   2.28
  TOTAL HOUSING STOCK     2.80   2.79   2.76   2.77   2.81   2.82   2.80   2.75   2.70   2.66   2.63   2.62   2.62   2.61   2.60


COOKING
SATURATION (%)
  EXISTING HOMES                 3.89   3.92   3.99   4.11   4.16   4.25   4.23   4.20   4.18   4.17   4.17   4.15   4.12   4.06
  NEW HOMES                      5.02   4.93   5.13   5.81   5.64   6.11   5.29   4.63   4.29   4.19   4.03   3.84   3.61   3.25
  TOTAL HOUSING STOCK     3.94   3.92   3.94   4.02   4.16   4.20   4.31   4.27   4.21   4.18   4.17   4.16   4.14   4.11   4.04


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES                  .78    .77    .78    .80    .79    .78    .76    .73    .71    .70    .69    .68    .66    .65
  NEW HOMES                       .42    .41    .40    .42    .39    .45    .39    .35    .32    .31    .28    .25    .22    .19
  TOTAL HOUSING STODR      .81    .77    .76    .77    .79    .78    .77    .75    .72    .70    .69    .68    .67    .65    .63


RESIDENTIAL
CUSTOMERS                 1.29   1.30   1.33   1.38   1.44   1.49   1.54   1.57   1.59   1.61   1.64   1.66   1.69   1.72   1.74

HOUSEHOLDS               40247  41007  41782  42572  43377  44279  45200  46140  47100  48079  48902  49738  50588  51453  52333
(TEN-THOUSANDS)
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#37 -- ADDABBO - HEINZ SCENARIO                                                  FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR MAINE

                           1996   1997   1998   1999   2000
                           ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----


SPACE HEATING
SATURATION (%)
  EXISTING HOMES           1.94   1.96   1.97   1.99   2.00
  NEW HOMES                2.75   2.70   2.65   2.57   2.48
  TOTAL HOUSING STOCK      1.96   1.98   1.99   2.00   2.01


WATER HEATING
SATURATION (%)
  EXISTING HOMES           2.58   2.56   2.54   2.52   2.49
  NEW HOMES                2.23   2.19   2.15   2.08   2.01
  TOTAL HOUSING STOCK      2.57   2.55   2.53   2.50   2.48


COOKING
SATURATION (%)
  EXISTING HOMES           4.01   3.95   3.90   3.83   3.77
  NEW HOMES                3.00   2.78   2.65   2.44   2.27
  TOTAL HOUSING STOCK      3.98   3.92   3.87   3.80   3.73


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES            .63    .61    .59    .58    .56
  NEW HOMES                 .17    .16    .15    .13    .12
  TOTAL HOUSING STODR       .61    .60    .58    .56    .55


RESIDENTIAL
CUSTOMERS                  1.75   1.77   1.79   1.81   1.82

HOUSEHOLDS                53228  54138  55064  56006  56963
(TEN-THOUSANDS)

AVERAGE ANNUAL GROWTH RATE OF RESIDENTIAL CUSTOMERS, 1981-2000:   1.84%
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#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

GAS DEMAND MODEL FOR MD.-D.C.

ANNUAL SALES, SUPPLY AND PRICE OF GAS

	GAS SALES						AVERAGE GAS PRICE			
YEAR	RESIDENTIAL	COMMERCIAL	INDUSTRIAL AND ALL OTHER	TOTAL SALES	GAS SUPPLY	ANNUAL SUPPLY DEFICIT	RESIDENTIAL	COMMERCIAL AND ALL OTHER	INDUSTRIAL	DEMAND WEIGHTED AVERAGE PRICE
	(BCF)				(BCF)	(BCF)	($/MMBTU IN $1981)			
1981	97.26	30.73	65.91	193.89	.00	.00	5.00	4.55	3.94	4.57
1982	92.88	29.07	54.14	176.09	.00	.00	5.56	5.11	4.50	5.16
1983	91.86	29.73	52.55	174.13	.00	.00	5.69	5.24	4.63	5.29
1984	94.50	29.98	52.15	176.63	.00	.00	5.63	5.18	4.57	5.24
1985	98.81	30.56	52.96	182.34	.00	.00	5.47	5.02	4.41	5.09
1986	101.60	30.89	54.52	187.01	.00	.00	5.48	5.03	4.42	5.10
1987	102.30	30.73	55.40	188.43	.00	.00	5.71	5.26	4.65	5.32
1988	101.38	30.16	55.45	186.99	.00	.00	6.12	5.67	5.06	5.73
1989	100.53	29.48	55.00	185.01	.00	.00	6.57	6.12	5.51	6.18
1990	101.01	28.99	54.31	184.31	.00	.00	6.90	6.45	5.84	6.52
1991	102.81	28.76	53.93	185.50	.00	.00	7.06	6.61	6.00	6.68
1992	106.16	28.83	54.19	189.19	.00	.00	7.05	6.60	5.99	6.68
1993	109.96	29.02	55.31	194.30	.00	.00	7.00	6.55	5.94	6.63
1994	112.79	29.05	56.56	198.40	.00	.00	7.08	6.63	6.02	6.71
1995	115.04	28.99	57.64	201.67	.00	.00	7.22	6.77	6.16	6.85
1996	116.87	28.82	58.56	204.25	.00	.00	7.45	7.00	6.39	7.08
1997	118.02	28.64	59.56	207.02	.00	.00	7.68	7.23	6.62	7.31
1998	120.89	28.47	60.24	209.60	.00	.00	7.91	7.46	6.85	7.54
1999	122.70	28.25	60.82	211.77	.00	.00	8.18	7.73	7.12	7.82
2000	124.44	28.00	61.39	213.83	.00	.00	8.47	8.02	7.41	8.11

ANNUAL RATES OF GROWTH

1981-1985	.40%	-.13%	-5.32%	-1.52%	.00%	.00%	2.27%	2.49%	2.86%	2.72%
1985-1990	.44%	-1.05%	.50%	.22%	.00%	.00%	4.75%	5.14%	5.78%	5.08%
1990-1995	2.64%	-.00%	1.20%	1.82%	.00%	.00%	.91%	.97%	1.07%	1.01%
1995-2000	1.58%	-.69%	1.27%	1.18%	.00%	.00%	3.25%	3.45%	3.76%	3.42%
1981-2000	1.31%	-.49%	-.37%	.52%	.00%	.00%	2.81%	3.03%	3.38%	3.06%

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#37 -- ADDABBO - HEINZ SCENARIO                                                                  FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR MD.-D.C.

                        1981   1982   1983   1984   1985   1986   1987   1988   1989   1990   1991   1992   1993   1994   1995
                        ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----


SPACE HEATING
SATURATION (%)
  EXISTING HOMES               48.00  48.28  48.64  49.14  49.56  49.82  49.90  49.83  49.74  49.68  49.73  49.85  49.93  49.98
  NEW HOMES                    62.69  57.64  60.58  65.14  66.61  64.37  59.25  53.75  50.47  49.96  52.01  54.66  55.38  55.25
  TOTAL HOUSING STOCK  48.54   48.36  48.51  48.93  49.53  49.98  50.18  50.12  49.93  49.75  49.69  49.78  49.95  50.04  50.09


WATER HEATING
SATURATION (%)
  EXISTING HOMES               55.57  55.52  56.18  57.20  57.58  57.30  56.52  55.62  54.97  54.67  54.79  55.06  55.04  54.90
  NEW HOMES                    63.05  58.28  61.13  65.50  66.86  64.67  59.70  54.38  51.17  50.63  52.55  55.04  55.68  55.50
  TOTAL HOUSING STOCK  57.64   55.75  55.59  56.30  57.40  57.81  57.48  56.59  55.59  54.88  54.58  54.75  55.06  55.05  54.91


COOKING
SATURATION (%)
  EXISTING HOMES               54.14  53.12  53.09  53.46  53.21  52.26  50.68  49.13  47.90  47.08  46.66  46.18  45.49  44.46
  NEW HOMES                    22.93  21.67  22.43  24.07  24.55  23.40  20.66  18.29  16.78  16.22  16.16  15.90  15.25  13.88
  TOTAL HOUSING STOCK  55.42   53.38  52.35  52.34  52.75  52.51  51.55  49.94  48.38  47.13  46.43  46.03  45.55  44.86  43.83


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES                7.41   7.35   7.51   7.74   7.79   7.65   7.39   7.13   6.94   6.84   6.82   6.80   6.71   6.55
  NEW HOMES                     6.42   5.71   5.30   5.10   4.89   4.55   3.95   3.48   3.11   2.86   2.61   2.30   2.03   1.66
  TOTAL HOUSING STODR   7.77    7.39   7.31   7.45   7.68   7.72   7.58   7.31   7.05   6.85   6.76   6.74   6.71   6.61   6.45


RESIDENTIAL
CUSTOMERS              86.86   85.87  86.47  88.34  90.82  92.50  93.18  92.96  92.59  92.57  92.87  93.73  94.68  95.25  95.45

HOUSEHOLDS            173920  176476 179070 181703 184374 187121 189909 192739 195610 198525 200709 202917 205149 207405 209687
(TEN-THOUSANDS)
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#37 -- ADDABBO - HEINZ SCENARIO                                                   FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR MD.-D.C.

                            1996   1997   1998   1999   2000
                            ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----


SPACE HEATING
SATURATION (%)
  EXISTING HOMES           49.98  49.95  49.91  49.83  49.73
  NEW HOMES                54.18  53.21  52.33  51.04  49.61
  TOTAL HOUSING STOCK      50.06  50.02  49.96  49.86  49.72


WATER HEATING
SATURATION (%)
  EXISTING HOMES           54.55  54.21  53.87  53.46  53.01
  NEW HOMES                54.41  53.41  52.51  51.21  49.70
  TOTAL HOUSING STOCK      54.55  54.20  53.85  53.41  52.94


COOKING
SATURATION (%)
  EXISTING HOMES           43.57  42.69  41.82  40.88  39.92
  NEW HOMES                13.01  12.19  11.42  10.56   9.71
  TOTAL HOUSING STOCK      42.93  42.06  41.19  40.25  39.29


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES            6.40   6.25   6.10   5.94   5.78
  NEW HOMES                 1.48   1.32   1.18   1.03    .90
  TOTAL HOUSING STODR       6.30   6.15   6.00   5.84   5.67


RESIDENTIAL
CUSTOMERS                  95.58  95.71  95.83  95.80  95.70

HOUSEHOLDS                211993 214325 216683 219066 221476
(TEN-THOUSANDS)

AVERAGE ANNUAL GROWTH RATE OF RESIDENTIAL CUSTOMERS, 1981-2000:     .51%
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#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

GAS DEMAND MODEL FOR MASS.

ANNUAL SALES, SUPPLY AND PRICE OF GAS

	GAS SALES						AVERAGE GAS PRICE			
YEAR	RESIDENTIAL	COMMERCIAL	INDUSTRIAL AND ALL OTHER	TOTAL SALES	GAS SUPPLY	ANNUAL SUPPLY DEFICIT	RESIDENTIAL	COMMERCIAL AND ALL OTHER	INDUSTRIAL	DEMAND WEIGHTED AVERAGE PRICE
	(BCF)				(BCF)	(BCF)	($/MMBTU IN $1981)			
1981	93.37	47.25	37.16	177.77	.00	.00	6.22	5.66	4.73	5.76
1982	90.11	45.89	34.17	170.17	.00	.00	6.78	6.22	5.29	6.33
1983	90.54	45.45	33.50	169.49	.00	.00	6.91	6.35	5.42	6.47
1984	93.22	45.52	33.17	171.91	.00	.00	6.85	6.29	5.36	6.41
1985	97.62	46.04	33.12	176.79	.00	.00	6.69	6.13	5.20	6.26
1986	100.46	46.22	33.53	180.21	.00	.00	6.70	6.14	5.21	6.28
1987	102.59	45.83	33.98	182.41	.00	.00	6.93	6.37	5.44	6.51
1988	102.82	44.94	34.37	182.13	.00	.00	7.34	6.78	5.85	6.92
1989	103.05	43.94	34.64	181.63	.00	.00	7.79	7.23	6.30	7.37
1990	104.41	43.18	34.83	182.42	.00	.00	8.12	7.56	6.63	7.70
1991	106.95	42.80	34.91	184.65	.00	.00	8.28	7.72	6.79	7.87
1992	110.65	42.82	35.12	188.59	.00	.00	8.27	7.71	6.78	7.87
1993	114.84	43.01	35.53	193.37	.00	.00	8.22	7.66	6.73	7.82
1994	118.31	42.99	36.03	197.34	.00	.00	8.30	7.74	6.81	7.91
1995	121.36	42.89	36.60	200.84	.00	.00	8.44	7.88	6.95	8.05
1996	124.01	42.63	37.11	203.75	.00	.00	8.67	8.11	7.18	8.28
1997	126.78	42.38	37.63	206.79	.00	.00	8.90	8.34	7.41	8.51
1998	129.76	42.15	38.11	210.02	.00	.00	9.13	8.57	7.64	8.75
1999	132.41	41.88	38.57	212.86	.00	.00	9.40	8.84	7.91	9.02
2000	135.86	41.56	39.01	215.63	.00	.00	9.69	9.13	8.20	9.31

ANNUAL RATES OF GROWTH

1981-1985	1.12%	-.64%	-2.83%	-.14%	.00%	.00%	1.84%	2.01%	2.40%	2.12%
1985-1990	1.35%	-1.28%	1.01%	.63%	.00%	.00%	3.95%	4.28%	4.98%	4.22%
1990-1995	3.06%	-.14%	.99%	1.94%	.00%	.00%	.78%	.83%	.95%	.88%
1995-2000	2.16%	-.63%	1.29%	1.43%	.00%	.00%	2.80%	2.99%	3.36%	2.96%
1981-2000	1.96%	-.67%	.26%	1.02%	.00%	.00%	2.36%	2.55%	2.94%	2.56%

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#37 -- ADDABBO - HEINZ SCENARIO                                                                     FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR MASS.

                           1981   1982   1983   1984   1985   1986   1987   1988   1989   1990   1991   1992   1993   1994   1995
                           ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----


SPACE HEATING
SATURATION (%)
  EXISTING HOMES                  32.10  32.44  32.79  33.25  33.72  34.09  34.36  34.54  34.69  34.86  35.10  35.39  35.68  35.97
  NEW HOMES                       48.06  43.76  47.08  51.91  54.29  53.30  49.83  46.15  44.36  44.57  46.95  49.84  51.10  51.61
  TOTAL HOUSING STOCK      32.41  32.48  32.71  33.12  33.69  34.17  34.51  34.70  34.79  34.90  35.06  35.34  35.69  36.00  36.29


WATER HEATING
SATURATION (%)
  EXISTING HOMES                  40.67  40.78  41.32  42.10  42.55  42.59  42.32  41.96  41.74  41.74  42.01  42.38  42.59  42.73
  NEW HOMES                       49.24  45.23  48.53  53.24  55.53  54.60  51.27  47.73  46.02  46.22  48.51  51.29  52.49  52.97
  TOTAL HOUSING STOCK      41.98  40.87  40.88  41.49  42.36  42.84  42.86  42.51  42.08  41.84  41.83  42.14  42.57  42.80  42.94


COOKING
SATURATION (%)
  EXISTING HOMES                  42.76  42.64  43.07  44.07  44.05  44.49  43.67  42.85  42.31  42.07  41.83  41.57  41.14  40.49
  NEW HOMES                       38.46  37.82  38.82  42.03  41.20  42.97  38.87  35.23  33.13  32.44  31.49  30.44  28.96  26.68
  TOTAL HOUSING STOCK      43.48  42.66  42.53  42.97  44.02  43.99  44.46  43.57  42.68  42.11  41.87  41.62  41.34  40.89  40.20


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES                   9.06   9.45  10.06  10.84  11.23  11.62  11.64  11.61  11.66  11.80  11.97  12.10  12.12  12.01
  NEW HOMES                       25.40  24.61  23.84  24.48  22.81  24.34  21.88  19.77  18.32  17.49  15.81  13.99  12.38  10.47
  TOTAL HOUSING STODR       9.42   9.44   9.80  10.38  11.16  11.49  11.90  11.86  11.78  11.80  11.92  12.05  12.14  12.12  11.98


RESIDENTIAL
CUSTOMERS                 101.40 101.67 103.17 105.63 108.90 110.86 112.92 113.51 113.98 114.83 116.01 117.47 119.05 120.34 121.35

HOUSEHOLDS                206085 208909 211771 214672 217613 220246 222911 225608 228332 231101 233597 236120 238670 241247 243853
(TEN-THOUSANDS)
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#37 -- ADDABBO - HEINZ SCENARIO                                    FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR MASS.

                          1996   1997   1998   1999   2000
                          ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----


SPACE HEATING
SATURATION (%)
  EXISTING HOMES         36.23  36.47  36.71  36.93  37.13
  NEW HOMES              51.33  51.13  51.00  50.49  49.85
  TOTAL HOUSING STOCK    36.54  36.78  37.01  37.21  37.39


WATER HEATING
SATURATION (%)
  EXISTING HOMES         42.74  42.75  42.76  42.73  42.66
  NEW HOMES              52.69  52.48  52.34  51.84  51.21
  TOTAL HOUSING STOCK    42.94  42.95  42.96  42.91  42.84


COOKING
SATURATION (%)
  EXISTING HOMES         39.87  39.26  38.76  38.09  37.45
  NEW HOMES              24.93  23.35  22.32  20.75  19.42
  TOTAL HOUSING STOCK    39.56  38.94  38.42  37.74  37.08


CLOTHES DRYING
SATURATION (X)
  EXISTING HOMES         11.87  11.72  11.59  11.40  11.20
  NEW HOMES               9.28   8.24   7.58   6.68   5.99
  TOTAL HOUSING STODR    11.82  11.65  11.51  11.30  11.09


RESIDENTIAL
CUSTOMERS               122.28 123.23 124.29 125.12 125.96

HOUSEHOLDS              246486 249148 251839 254559 257308
(TEN-THOUSANDS)

AVERAGE ANNUAL GROWTH RATE OF RESIDENTIAL CUSTOMERS, 1981-2000:   1.15%
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#37 -- ADDABBO - HEINZ SCENARIO                                                          FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR MICHIGAN

                                           ANNUAL SALES, SUPPLY AND PRICE OF GAS

                          GAS SALES                                                            AVERAGE GAS PRICE
              ----------------------------------------------                        ---------------------------------      DEMAND
                                     INDUSTRIAL                            ANNUAL                    COMMERCIAL                WEIGHTED
                                        AND        TOTAL        GAS        SUPPLY                       AND                    AVERAGE
YEAR      RESIDENTIAL COMMERCIAL  ALL OTHER       SALES       SUPPLY       DEFICIT    RESIDENTIAL  ALL OTHER    INDUSTRIAL      PRICE
----      ----------  ----------  ----------  ----------  ----------  ----------  ----------  ----------  ----------  ----------
          --------------------( BCF )--------------------  (  BCF  )   (  BCF  )   --------------($/MMBTU IN $1981)--------------
1981        363.78      176.27      226.85      766.90         .00         .00        3.78        3.74        3.49        3.69
1982        342.51      168.18      187.77      698.46         .00         .00        4.34        4.30        4.05        4.25
1983        341.66      165.21      180.66      687.52         .00         .00        4.47        4.43        4.18        4.38
1984        351.88      164.70      178.23      694.81         .00         .00        4.41        4.37        4.12        4.33
1985        368.52      166.32      180.52      715.36         .00         .00        4.25        4.21        3.96        4.17
1986        376.77      166.05      185.58      728.39         .00         .00        4.26        4.22        3.97        4.18
1987        376.17      162.79      188.04      726.99         .00         .00        4.49        4.45        4.20        4.41
1988        368.74      157.19      187.33      713.27         .00         .00        4.90        4.86        4.61        4.82
1989        361.62      151.27      184.85      697.74         .00         .00        5.35        5.31        5.06        5.26
1990        359.27      146.74      181.71      687.71         .00         .00        5.68        5.64        5.39        5.59
1991        362.35      144.01      179.62      685.98         .00         .00        5.84        5.80        5.55        5.76
1992        371.81      142.98      179.84      694.64         .00         .00        5.83        5.79        5.54        5.75
1993        381.71      142.54      183.05      707.30         .00         .00        5.78        5.74        5.49        5.70
1994        390.13      141.20      186.84      718.17         .00         .00        5.86        5.82        5.57        5.78
1995        393.87      139.41      190.15      723.43         .00         .00        6.00        5.96        5.71        5.92
1996        397.67      137.03      193.05      727.74         .00         .00        6.23        6.19        5.94        6.15
1997        399.49      134.68      195.93      730.10         .00         .00        6.46        6.42        6.17        6.37
1998        403.78      132.45      198.15      734.38         .00         .00        6.69        6.65        6.40        6.60
1999        404.89      129.98      199.78      734.65         .00         .00        6.96        6.92        6.67        6.87
2000        407.63      127.51      201.45      736.58         .00         .00        7.25        7.21        6.96        7.16


ANNUAL RATES OF GROWTH
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1981-1985      .32%      -1.44%      -5.55%      -1.72%        .00%        .00%       2.97%       3.00%       3.21%       3.12%
1985-1990     -.51%      -2.47%        .13%       -.79%        .00%        .00%       5.97%       6.02%       6.36%       6.07%
1990-1995     1.86%      -1.02%        .91%       1.02%        .00%        .00%       1.10%       1.11%       1.16%       1.12%
1995-2000      .69%      -1.77%       1.16%        .36%        .00%        .00%       3.86%       3.88%       4.04%       3.90%
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1981-2000      .60%      -1.69%       -.62%       -.21%        .00%        .00%       3.49%       3.52%       3.70%       3.56%
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#37 -- ADDABBO - HEINZ SCENARIO                                                                           FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR MICHIGAN

                          1981    1982    1983    1984    1985    1986    1987    1988    1989    1990    1991    1992    1993    1994    1995
                          ----    ----    ----    ----    ----    ----    ----    ----    ----    ----    ----    ----    ----    ----    ----


SPACE HEATING
SATURATION (%)
  EXISTING HOMES                 75.50   75.48   75.75   76.25   76.50   76.39   76.01   75.54   75.14   74.90   74.87   74.94   74.90   74.80
  NEW HOMES                      81.11   77.39   79.82   83.41   84.60   82.95   78.82   73.97   70.94   70.48   72.54   75.06   75.74   75.66
  TOTAL HOUSING STOCK    76.54   75.65   75.54   75.86   76.45   76.71   76.56   76.09   75.50   75.04   74.80   74.81   74.94   74.92   74.82


WATER HEATING
SATURATION (%)
  EXISTING HOMES                 66.69   66.67   67.74   69.35   70.00   69.55   68.43   67.26   66.53   66.34   66.74   67.33   67.40   67.43
  NEW HOMES                      81.31   77.89   80.28   83.74   84.90   83.37   79.52   75.01   72.21   71.82   73.79   76.17   76.04   76.79
  TOTAL HOUSING STOCK    69.66   67.10   66.98   68.09   69.75   70.38   69.90   68.71   67.46   66.67   66.46   66.90   67.53   67.69   67.65


COOKING
SATURATION (%)
  EXISTING HOMES                 41.37   41.17   41.96   43.06   43.31   43.09   42.23   41.42   40.65   40.34   40.50   40.05   40.41   39.43
  NEW HOMES                      39.39   38.74   41.57   45.22   45.59   44.39   40.34   37.04   33.94   33.18   34.16   32.08   34.19   29.78
  TOTAL HOUSING STOCK    42.47   41.31   41.11   41.95   43.12   43.37   43.12   42.19   41.31   40.48   40.18   40.36   39.87   40.27   39.21


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES                 21.04   20.83   21.48   22.40   22.55   22.24   21.51   20.84   20.33   20.16   20.35   20.23   20.42   19.87
  NEW HOMES                      17.73   17.76   18.77   19.78   19.50   19.70   18.64   18.17   16.81   16.50   16.75   14.10   15.81   12.32
  TOTAL HOUSING STODR    22.19   20.95   20.74   21.41   22.33   22.48   22.17   21.44   20.78   20.24   20.07   20.27   20.09   20.31   19.70


RESIDENTIAL
CUSTOMERS               233.01  232.65  236.42  243.28  251.56  256.71  259.73  260.72  261.57  263.05  265.46  269.60  273.11  277.37  279.08

HOUSEHOLDS              325411  331431  337563  343807  350168  355631  361178  366813  372535  378347  383227  388171  393178  398250  403388
(TEN-THOUSANDS)
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#37 -- ADDABBO - HEINZ SCENARIO                                          FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR MICHIGAN

                           1996   1997   1998   1999   2000
                           ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----


SPACE HEATING
SATURATION (%)
  EXISTING HOMES          74.61  74.41  74.20  73.95  73.67
  NEW HOMES               74.68  73.79  72.98  71.76  70.41
  TOTAL HOUSING STOCK     74.61  74.40  74.17  73.90  73.59


WATER HEATING
SATURATION (%)
  EXISTING HOMES          67.10  66.79  66.49  66.09  65.66
  NEW HOMES               75.90  75.10  74.37  73.27  72.04
  TOTAL HOUSING STOCK     67.30  66.98  66.67  66.26  65.80


COOKING
SATURATION (%)
  EXISTING HOMES          39.45  38.53  38.49  37.51  37.26
  NEW HOMES               30.87  27.37  28.30  24.75  25.01
  TOTAL HOUSING STOCK     39.25  38.28  38.26  37.22  36.99


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES          19.78  19.23  19.12  18.54  18.33
  NEW HOMES               13.82  11.49  12.75  10.45  11.27
  TOTAL HOUSING STODR     19.64  19.05  18.98  18.36  18.17


RESIDENTIAL
CUSTOMERS                282.08 283.47 286.44 287.54 289.90

HOUSEHOLDS               408592 413863 419201 424609 430087
(TEN-THOUSANDS)

AVERAGE ANNUAL GROWTH RATE OF RESIDENTIAL CUSTOMERS, 1981-2000:    1.16%
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#37 -- ADDABBO - HEINZ SCENARIO                                                              FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR MINN.

                                                  ANNUAL SALES, SUPPLY AND PRICE OF GAS

                         GAS SALES                                                                  AVERAGE GAS PRICE
         ----------------------------------------------                            ---------------------------------       DEMAND
                                        INDUSTRIAL                                   ANNUAL               COMMERCIAL                      WEIGHTED
                                           AND          TOTAL         GAS            SUPPLY                  AND                          AVERAGE
 YEAR    RESIDENTIAL  COMMERCIAL      ALL OTHER         SALES        SUPPLY          DEFICIT    RESIDENTIAL  ALL OTHER    INDUSTRIAL       PRICE
 ----    ----------   ----------      ----------     ----------    ----------     ----------    ----------   ----------   ----------    ----------
         --------------------( BCF )--------------------------     (  BCF  )      (  BCF  )     ----------------($/MMBTU IN $1981)------------------
 1981       94.43        72.59          80.89          247.91           .00            .00         4.09         3.81         3.10          3.68
 1982       89.88        69.40          77.15          236.44           .00            .00         4.65         4.37         3.66          4.24
 1983       90.21        68.32          75.30          233.83           .00            .00         4.70         4.50         3.79          4.38
 1984       93.31        68.23          74.10          235.65           .00            .00         4.72         4.44         3.73          4.33
 1985       98.06        68.98          73.64          240.68           .00            .00         4.56         4.28         3.57          4.18
 1986      100.75        68.95          74.13          243.84           .00            .00         4.57         4.29         3.58          4.19
 1987      101.14        67.70          74.68          243.52           .00            .00         4.80         4.52         3.81          4.42
 1988       99.63        65.48          75.10          240.22           .00            .00         5.21         4.93         4.22          4.82
 1989       98.02        63.13          75.23          236.39           .00            .00         5.66         5.30         4.67          5.27
 1990       97.53        61.33          75.08          233.94           .00            .00         5.99         5.71         5.00          5.60
 1991       98.30        60.25          74.79          233.34           .00            .00         6.15         5.87         5.16          5.76
 1992      100.73        59.85          74.64          235.23           .00            .00         6.14         5.86         5.15          5.75
 1993      103.29        59.70          74.92          237.91           .00            .00         6.09         5.81         5.10          5.71
 1994      105.48        59.16          75.58          240.22           .00            .00         6.17         5.89         5.18          5.79
 1995      106.43        58.44          76.37          241.24           .00            .00         6.31         6.03         5.32          5.93
 1996      107.39        57.44          77.27          242.11           .00            .00         6.54         6.26         5.55          6.16
 1997      107.81        56.48          78.12          242.40           .00            .00         6.77         6.49         5.78          6.39
 1998      108.85        55.54          78.94          243.33           .00            .00         7.00         6.72         6.01          6.61
 1999      109.03        54.51          79.76          243.30           .00            .00         7.27         6.99         6.28          6.88
 2000      109.61        53.47          80.55          243.63           .00            .00         7.56         7.28         6.57          7.17


ANNUAL RATES OF GROWTH
----------------------

1981-1985      .95%       -1.27%        -2.32%          -.74%          .00%           .00%        2.76%        2.95%        3.59%         3.18%
1985-1990     -.11%       -2.33%          .39%          -.57%          .00%           .00%        5.61%        5.93%        6.97%         6.04%
1990-1995     1.76%        -.96%          .34%           .62%          .00%           .00%        1.05%        1.10%        1.25%         1.15%
1995-2000      .59%       -1.76%         1.07%           .20%          .00%           .00%        3.60%        3.84%        4.31%         3.80%
---------
1981-2000      .79%       -1.60%         -.02%          -.09%          .00%           .00%        3.29%        3.47%        4.03%         3.57%
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#37 -- ADDABBO - HEINZ SCENARIO                                                                    FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR MINN.

                            1981    1982    1983    1984    1985    1986    1987    1988    1989    1990    1991    1992    1993    1994    1995
                            ----    ----    ----    ----    ----    ----    ----    ----    ----    ----    ----    ----    ----    ----    ----


SPACE HEATING
SATURATION (%)
  EXISTING HOMES                   58.43   58.66   58.99   59.52   59.93   60.08   59.96   59.66   59.31   59.00   58.87   58.82   58.73   58.60
  NEW HOMES                        69.92   64.61   67.25   71.62   72.85   70.09   64.06   57.47   53.34   52.43   54.44   57.11   57.58   57.09
  TOTAL HOUSING STOCK      59.21   58.80   58.85   59.26   59.91   60.33   60.38   60.89   59.59   59.12   58.83   58.75   58.78   58.70   58.56


WATER HEATING
SATURATION (%)
  EXISTING HOMES                   52.17   52.34   53.21   54.51   55.15   54.99   54.27   53.40   52.76   52.48   52.64   52.95   52.97   52.84
  NEW HOMES                        69.36   64.35   67.01   71.31   72.53   69.89   64.11   57.81   53.88   53.03   54.99   57.58   58.06   57.62
  TOTAL HOUSING STOCK      54.44   52.72   52.73   53.66   55.05   55.68   55.44   54.57   53.54   52.80   52.50   52.70   53.07   53.10   52.97


COOKING
SATURATION (%)
  EXISTING HOMES                   30.47   30.38   30.99   31.83   32.10   32.04   31.50   30.97   30.43   30.21   30.33   29.99   30.26   29.54
  NEW HOMES                        31.23   30.72   33.25   36.53   36.88   35.89   32.38   29.58   26.95   26.33   27.18   25.35   27.22   23.43
  TOTAL HOUSING STOCK      31.23   30.49   30.39   31.06   31.98   32.24   32.15   31.53   30.93   30.32   30.11   30.24   29.87   30.18   29.38


CLOTHES DRYING
SATURATION (X)
  EXISTING HOMES                   17.85   17.47   17.77   18.27   18.18   17.76   17.04   16.39   15.86   15.60   15.63   15.42   15.46   14.96
  NEW HOMES                        10.06   10.19   10.95   11.74   11.69   11.97   11.40   11.23   10.46   10.35   10.62    8.94   10.18    7.93
  TOTAL HOUSING STODR      18.81   17.60   17.24   17.55   18.06   17.98   17.58   16.87   16.23   15.69   15.46   15.50   15.25   15.32   14.78


RESIDENTIAL
CUSTOMERS                  78.04   78.52   80.28   83.13   86.56   89.05   90.80   91.73   92.48   93.37   94.45   96.18   97.71   99.54  100.44

HOUSEHOLDS                147940  151358  154854  158431  162091  165527  169037  172620  176280  180017  183059  186153  189299  192498  195751
(TEN-THOUSANDS)
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#37 -- ADDABBO - HEINZ SCENARIO                                                    FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR MINN.

                          1996   1997   1998   1999   2000
                          ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----


SPACE HEATING
SATURATION (%)
  EXISTING HOMES         58.38  58.14  57.87  57.55  57.18
  NEW HOMES              55.48  54.00  52.63  50.79  48.81
  TOTAL HOUSING STOCK    58.31  58.03  57.73  57.37  56.96


WATER HEATING
SATURATION (%)
  EXISTING HOMES         52.50  52.15  51.79  51.34  50.84
  NEW HOMES              56.10  54.69  53.39  51.64  49.76
  TOTAL HOUSING STOCK    52.60  52.22  51.83  51.35  50.81


COOKING
SATURATION (%)
  EXISTING HOMES         29.55  28.87  28.83  28.08  27.88
  NEW HOMES              24.42  21.47  22.31  19.36  19.62
  TOTAL HOUSING STOCK    29.41  28.67  28.65  27.85  27.66


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES         14.81  14.32  14.17  13.68  13.45
  NEW HOMES               9.03   7.55   8.49   7.81   7.65
  TOTAL HOUSING STODR    14.65  14.14  14.02  13.50  13.30


RESIDENTIAL
CUSTOMERS               101.79 102.52 103.82 104.39 105.39

HOUSEHOLDS              199059 202423 205844 209323 212861
(TEN-THOUSANDS)

AVERAGE ANNUAL GROWTH RATE OF RESIDENTIAL CUSTOMERS, 1981-2000:   1.59%
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#37 -- ADDABBO - WEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

GAS DEMAND MODEL FOR MISS.

ANNUAL SALES, SUPPLY AND PRICE OF GAS

	GAS SALES						AVERAGE GAS PRICE			
YEAR	RESIDENTIAL	COMMERCIAL	INDUSTRIAL AND ALL OTHER	TOTAL SALES	GAS SUPPLY	ANNUAL SUPPLY DEFICIT	RESIDENTIAL	COMMERCIAL AND ALL OTHER	INDUSTRIAL	DEMAND WEIGHTED AVERAGE PRICE
	(BCF)				(BCF)	(BCF)	($/MMBTU IN $1981)			
1981	29.52	18.70	86.37	134.59	.00	.00	3.81	3.50	3.18	3.36
1982	27.75	17.76	78.92	124.44	.00	.00	4.37	4.06	3.74	3.93
1983	27.50	17.43	75.42	120.35	.00	.00	4.50	4.19	3.87	4.06
1984	28.16	17.37	73.41	118.94	.00	.00	4.44	4.13	3.81	4.91
1985	29.27	17.53	73.05	119.85	.00	.00	4.28	3.97	3.65	3.85
1986	29.86	17.48	73.88	121.22	.00	.00	4.29	3.98	3.66	3.86
1987	29.64	17.09	74.02	120.76	.00	.00	4.52	4.21	3.89	4.09
1988	29.00	16.45	73.34	118.79	.00	.00	4.93	4.62	4.30	4.50
1989	28.31	15.79	71.96	116.05	.00	.00	5.38	5.07	4.75	4.95
1990	28.02	15.27	70.44	113.74	.00	.00	5.71	5.40	5.08	5.28
1991	28.09	14.96	69.14	112.19	.00	.00	5.87	5.56	5.24	5.44
1992	28.69	14.82	68.56	112.08	.00	.00	5.86	5.55	5.23	5.43
1993	29.25	14.75	68.69	112.70	.00	.00	5.81	5.50	5.18	5.39
1994	29.75	14.58	69.37	113.70	.00	.00	5.89	5.58	5.26	5.47
1995	29.84	14.35	69.81	113.99	.00	.00	6.03	5.72	5.40	5.61
1996	29.97	14.06	70.55	114.58	.00	.00	6.26	5.95	5.63	5.83
1997	29.89	13.78	70.97	114.64	.00	.00	6.49	6.18	5.86	6.06
1998	30.05	13.51	71.45	115.01	.00	.00	6.72	6.41	6.09	6.29
1999	29.91	13.21	71.70	114.82	.00	.00	6.99	6.68	6.36	6.56
2000	29.93	12.91	72.05	114.89	.00	.00	7.28	6.97	6.65	6.85

ANNUAL RATES OF GROWTH

1981-1985	-.21%	-1.60%	-4.10%	-2.86%	.00%	.00%	2.95%	3.20%	3.51%	3.45%
1985-1990	-.87%	-2.72%	-.72%	-1.04%	.00%	.00%	5.93%	6.35%	6.84%	6.51%
1990-1995	1.26%	-1.24%	-.18%	.05%	.00%	.00%	1.10%	1.16%	1.23%	1.21%
1995-2000	.06%	-2.09%	.63%	.16%	.00%	.00%	3.84%	4.03%	4.25%	4.09%
1981-2000	.07%	-1.93%	-.95%	-.83%	.00%	.00%	3.47%	3.69%	3.96%	3.82%

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#37 -- ADDABBO - HEINZ SCENARIO                                                              FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR MISS.

                         1981   1982   1983   1984   1985   1986   1987   1988   1989   1990   1991   1992   1993   1994   1995
                         ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----


SPACE HEATING
SATURATION (%)
  EXISTING HOMES                44.89  44.47  44.12  43.97  43.79  43.46  42.91  42.20  41.44  40.74  40.23  39.79  39.33  38.86
  NEW HOMES                     34.87  29.60  32.35  37.42  38.99  35.65  29.35  23.71  20.71  20.07  21.44  23.39  23.73  23.33
  TOTAL HOUSING STOCK   45.51   44.58  44.01  43.76  43.77  43.64  43.22  42.51  41.65  40.83  40.20  39.73  39.36  38.92  38.45


WATER HEATING
SATURATION (%)
  EXISTING HOMES                36.85  36.24  36.15  36.39  36.22  35.56  34.52  33.39  32.43  31.72  31.38  31.13  30.71  30.22
  NEW HOMES                     25.61  21.55  23.81  28.00  29.34  26.60  21.57  17.24  15.01  14.54  15.58  17.08  17.35  17.06
  TOTAL HOUSING STOCK   38.49   36.50  35.78  35.77  36.13  36.01  35.29  34.14  32.91  31.91  31.27  30.96  30.76  30.36  29.87


COOKING
SATURATION (%)
  EXISTING HOMES                29.92  29.40  29.65  29.89  29.89  29.25  28.69  27.97  27.47  27.00  27.10  26.62  26.80  26.02
  NEW HOMES                     20.84  19.80  21.60  23.04  23.82  21.59  20.43  18.62  17.80  16.98  18.32  16.80  18.63  15.76
  TOTAL HOUSING STOCK   30.43   29.64  29.10  29.40  29.68  29.71  29.03  28.44  27.70  27.18  26.74  26.87  26.36  26.59  25.75


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES                 1.91   2.11   2.40   2.70   2.94   3.07   3.17   3.27   3.41   3.57   3.80   3.95   4.15   4.22
  NEW HOMES                      9.17   8.87   9.39   9.29   9.57   8.93   9.53   9.66   9.93   9.60  10.41   8.84  10.29   8.28
  TOTAL HOUSING STODR    2.00    2.13   2.32   2.61   2.91   3.14   3.24   3.36   3.46   3.60   3.73   3.97   4.08   4.32   4.32


RESIDENTIAL
CUSTOMERS               35.26   35.08  35.34  36.13  37.11  37.81  38.03  38.07  37.96  37.99  38.07  38.51  38.76  39.23  39.22

HOUSEHOLDS              84503   86345  88227  90151  92116  93986  95894  97841  99827 101853 103554 105284 107042 108829 110647
(TEN-THOUSANDS)
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#37 -- ADDABBO - HEINZ SCENARIO                                      FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR MISS.

                           1996   1997   1998   1999   2000
                           ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----


SPACE HEATING
SATURATION (%)
  EXISTING HOMES          38.33  37.80  37.25  36.68  36.09
  NEW HOMES               22.10  21.02  20.06  18.84  17.60
  TOTAL HOUSING STOCK     37.91  37.36  36.80  36.21  35.61


WATER HEATING
SATURATION (%)
  EXISTING HOMES          29.61  29.01  28.42  27.80  27.16
  NEW HOMES               16.14  15.34  14.63  13.72  12.81
  TOTAL HOUSING STOCK     29.26  28.65  28.06  27.43  26.78


COOKING
SATURATION (%)
  EXISTING HOMES          25.98  25.23  25.14  24.36  24.13
  NEW HOMES               16.82  14.47  15.36  13.84  13.41
  TOTAL HOUSING STOCK     25.74  24.95  24.89  24.07  23.85


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES           4.35   4.38   4.50   4.51   4.59
  NEW HOMES                9.60   8.11   9.28   7.76   8.60
  TOTAL HOUSING STODR      4.48   4.48   4.63   4.59   4.69


RESIDENTIAL
CUSTOMERS                 39.48  39.41  39.65  39.52  39.64

HOUSEHOLDS               112495 114373 116283 118225 120200
(TEN-THOUSANDS)

AVERAGE ANNUAL GROWTH RATE OF RESIDENTIAL CUSTOMERS, 1981-2000:     .62%
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#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

GAS DEMAND MODEL FOR MISSOURI

ANNUAL SALES, SUPPLY AND PRICE OF GAS

	GAS SALES						AVERAGE GAS PRICE			
YEAR	RESIDENTIAL	COMMERCIAL	INDUSTRIAL AND ALL OTHER	TOTAL SALES	GAS SUPPLY	ANNUAL SUPPLY DEFICIT	RESIDENTIAL	COMMERCIAL AND ALL OTHER	INDUSTRIAL	DEMAND WEIGHTED AVERAGE PRICE
	(BCF)				(BCF)	(BCF)	($/MMBTU IN $1981)			
1981	134.52	60.68	76.62	271.82	.00	.00	3.78	3.39	3.01	3.48
1982	126.55	57.64	69.94	254.14	.00	.00	4.34	3.95	3.57	4.04
1983	125.94	56.60	66.53	249.07	.00	.00	4.47	4.08	3.70	4.18
1984	129.38	56.43	64.51	250.32	.00	.00	4.41	4.02	3.64	4.12
1985	136.68	57.04	64.49	258.22	.00	.00	4.25	3.86	3.48	3.97
1986	139.33	56.91	65.31	261.55	.00	.00	4.26	3.87	3.49	3.98
1987	138.71	55.65	65.44	259.79	.00	.00	4.49	4.10	3.72	4.21
1988	135.85	53.54	64.60	254.00	.00	.00	4.90	4.51	4.13	4.62
1989	133.17	51.35	63.08	247.61	.00	.00	5.35	4.96	4.58	5.07
1990	132.43	49.68	61.48	243.59	.00	.00	5.68	5.29	4.91	5.41
1991	133.96	48.67	60.15	242.78	.00	.00	5.84	5.45	5.07	5.57
1992	137.47	48.25	59.46	245.17	.00	.00	5.83	5.44	5.06	5.57
1993	141.71	48.03	59.57	249.30	.00	.00	5.78	5.39	5.01	5.52
1994	144.48	47.45	59.93	251.87	.00	.00	5.86	5.47	5.09	5.60
1995	146.46	46.73	60.29	253.48	.00	.00	6.00	5.61	5.23	5.74
1996	147.62	45.79	60.63	254.03	.00	.00	6.23	5.84	5.46	5.98
1997	148.92	44.86	60.90	254.68	.00	.00	6.46	6.07	5.69	6.21
1998	150.36	43.98	61.06	255.40	.00	.00	6.69	6.30	5.92	6.44
1999	151.43	43.03	61.19	255.65	.00	.00	6.96	6.57	6.19	6.71
2000	152.41	42.06	61.27	255.73	.00	.00	7.25	6.86	6.48	7.00

ANNUAL RATES OF GROWTH

1981-1985	.40%	-1.53%	-4.22%	-1.27%	.00%	.00%	2.97%	3.30%	3.69%	3.39%
1985-1990	-.63%	-2.72%	-.95%	-1.16%	.00%	.00%	5.97%	6.51%	7.13%	6.36%
1990-1995	2.03%	-1.22%	-.39%	.80%	.00%	.00%	1.10%	1.18%	1.27%	1.22%
1995-2000	.80%	-2.09%	.32%	.18%	.00%	.00%	3.86%	4.11%	4.38%	4.03%
1981-2000	.66%	-1.91%	-1.17%	-.32%	.00%	.00%	3.49%	3.78%	4.12%	3.75%

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#37 -- ADDABBO - HEINZ SCENARIO                                                      FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR MISSOURI

                             1981   1982   1983   1984   1985   1986   1987   1988   1989   1990   1991   1992   1993   1994   1995
                             ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----

SPACE HEATING
SATURATION (%)
  EXISTING HOMES                    63.83  63.88  64.12  64.59  64.91  64.91  64.67  64.32  64.00  63.80  63.79  63.88  63.89  63.87
  NEW HOMES                         70.74  66.02  69.35  74.36  76.26  74.25  69.10  63.38  60.10  59.86  62.56  65.83  66.91  67.08
  TOTAL HOUSING STOCK        64.70  64.01  63.93  64.26  64.85  65.17  65.12  64.77  64.29  63.91  63.72  63.77  63.92  63.96  63.93


WATER HEATING
SATURATION (%)
  EXISTING HOMES                    59.63  59.51  60.35  61.71  62.28  61.88  60.87  59.78  59.06  58.81  59.11  59.59  59.70  59.64
  NEW HOMES                         69.06  64.56  67.97  73.02  74.97  73.02  67.99  62.47  59.36  59.17  61.84  65.06  66.17  66.37
  TOTAL HOUSING STOCK        62.26  59.88  59.65  60.56  62.01  62.57  62.14  61.03  59.84  59.07  58.82  59.16  59.70  59.83  59.78


COOKING
SATURATION (%)
  EXISTING HOMES                    41.07  40.44  40.58  42.71  42.41  41.64  40.51  39.44  38.55  38.29  38.05  37.84  37.39  36.66
  NEW HOMES                         28.61  27.27  28.33  36.13  34.94  32.12  28.27  25.14  22.89  23.15  22.97  22.80  21.97  20.13
  TOTAL HOUSING STOCK        41.87  40.74  40.09  40.25  42.53  42.24  41.42  40.23  39.11  38.19  37.98  37.75  37.53  37.08  36.33


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES                    13.13  13.01  13.34  14.50  14.59  14.34  13.89  13.47  13.18  13.18  13.25  13.33  13.26  13.04
  NEW HOMES                         13.11  12.53  12.29  16.29  14.94  13.79  12.72  12.03  11.20  11.63  10.99  10.22   9.48   8.24
  TOTAL HOUSING STODR        13.77  13.13  12.99  13.31  14.55  14.60  14.33  13.86  13.44  13.14  13.14  13.20  13.27  13.18  12.94


RESIDENTIAL
CUSTOMERS                   111.95 111.51 112.78 115.49 120.30 122.14 122.86 122.73 122.50 122.68 123.55 124.88 126.44 127.50 128.17

HOUSEHOLDS                  182450 185551 188706 191914 195176 197714 200284 202888 205525 208197 210404 212634 214888 217166 219468
(TEN-THOUSANDS)
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#37 -- ADDABBO - HEINZ SCENARIO                                          FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR MISSOURI

                          1996    1997    1998    1999    2000
                          ----    ----    ----    ----    ----    ----    ----    ----    ----    ----    ----    ----    ----    ----    ----


SPACE HEATING
SATURATION (%)
  EXISTING HOMES         63.76   63.65   63.53   63.37   63.18
  NEW HOMES              66.18   65.39   64.72   63.60   62.34
  TOTAL HOUSING STOCK    63.81   63.68   63.55   63.37   63.16


WATER HEATING
SATURATION (%)
  EXISTING HOMES         59.34   59.05   58.78   58.42   58.03
  NEW HOMES              65.54   64.82   64.21   63.16   61.99
  TOTAL HOUSING STOCK    59.47   59.17   58.89   58.52   58.11


COOKING
SATURATION (%)
  EXISTING HOMES         35.97   35.29   34.61   33.86   33.09
  NEW HOMES              18.75   17.49   16.33   15.00   13.73
  TOTAL HOUSING STOCK    35.62   34.93   34.24   33.47   32.69


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES         12.79   12.55   12.30   12.02   11.73
  NEW HOMES               7.61    7.02    6.47    5.87    5.31
  TOTAL HOUSING STODR    12.69   12.43   12.18   11.90   11.60


RESIDENTIAL
CUSTOMERS               128.66  129.16  129.67  130.02  130.30

HOUSEHOLDS              221795  224146  226522  228923  231349
(TEN-THOUSANDS)

AVERAGE ANNUAL GROWTH RATE OF RESIDENTIAL CUSTOMERS, 1981-2000:     .80%
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#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

GAS DEMAND MODEL FOR MONTANA

ANNUAL SALES, SUPPLY AND PRICE OF GAS

	GAS SALES						AVERAGE GAS PRICE			
YEAR	RESIDENTIAL	COMMERCIAL	INDUSTRIAL AND ALL OTHER	TOTAL SALES	GAS SUPPLY	ANNUAL SUPPLY DEFICIT	RESIDENTIAL	COMMERCIAL AND ALL OTHER	INDUSTRIAL	DEMAND WEIGHTED AVERAGE PRICE
	(BCF)				(BCF)	(BCF)	($/MMBTU IN $1981)			
1981	17.12	13.66	15.85	46.63	.00	.00	3.94	3.94	3.66	3.84
1982	16.24	13.04	13.58	42.86	.00	.00	4.50	4.50	4.22	4.41
1983	16.19	12.81	13.10	42.10	.00	.00	4.63	4.63	4.35	4.54
1984	16.60	12.76	12.92	42.27	.00	.00	4.57	4.57	4.29	4.48
1985	17.30	12.86	13.07	43.23	.00	.00	4.41	4.41	4.13	4.33
1986	17.64	12.82	13.42	43.87	.00	.00	4.42	4.42	4.14	4.33
1987	17.56	12.55	13.58	43.68	.00	.00	4.65	4.65	4.37	4.56
1988	17.24	12.12	13.52	42.87	.00	.00	5.06	5.06	4.78	4.97
1989	16.89	11.66	13.32	41.86	.00	.00	5.51	5.51	5.23	5.42
1990	16.79	11.30	13.07	41.16	.00	.00	5.84	5.84	5.56	5.75
1991	16.91	11.08	12.90	40.88	.00	.00	6.00	6.00	5.72	5.91
1992	17.28	10.98	12.87	41.13	.00	.00	5.99	5.99	5.71	5.90
1993	17.74	10.92	13.05	41.71	.00	.00	5.94	5.94	5.66	5.85
1994	18.03	10.80	13.27	42.10	.00	.00	6.02	6.02	5.74	5.93
1995	18.24	10.64	13.46	42.34	.00	.00	6.16	6.16	5.88	6.07
1996	18.34	10.43	13.64	42.41	.00	.00	6.39	6.39	6.11	6.30
1997	18.45	10.23	13.81	42.50	.00	.00	6.62	6.62	6.34	6.53
1998	18.58	10.03	13.93	42.54	.00	.00	6.85	6.85	6.57	6.76
1999	18.66	9.82	14.02	42.50	.00	.00	7.12	7.12	6.84	7.03
2000	18.72	9.60	14.11	42.43	.00	.00	7.41	7.41	7.13	7.32

ANNUAL RATES OF GROWTH

1981-1985	.26%	-1.50%	-4.70%	-1.87%	.00%	.00%	2.86%	2.86%	3.07%	2.99%
1985-1990	-.59%	-2.55%	-.01%	-.98%	.00%	.00%	5.78%	5.78%	6.13%	5.86%
1990-1995	1.67%	-1.20%	.60%	.57%	.00%	.00%	1.07%	1.07%	1.13%	1.09%
1995-2000	.52%	-2.02%	.94%	.04%	.00%	.00%	3.76%	3.76%	3.93%	3.80%
1981-2000	.47%	-1.84%	-.61%	-.49%	.00%	.00%	3.38%	3.38%	3.57%	3.44%

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#37 -- ADDABBO - HEINZ SCENARIO                                                         FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR MONTANA

                          1981   1982   1983   1984   1985   1986   1987   1988   1989   1990   1991   1992   1993   1994   1995
                          ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----


SPACE HEATING
SATURATION (%)
  EXISTING HOMES                60.03  59.71  59.51  59.54  59.51  59.27  58.80  58.19  57.59  57.07  56.73  56.49  56.20  55.89
  NEW HOMES                     53.75  47.90  51.17  56.70  59.02  56.38  50.18  43.90  40.50  39.96  42.33  45.43  46.29  46.15
  TOTAL HOUSING STOCK    60.84  59.84  59.35  59.26  59.46  59.49  59.20  58.59  57.85  57.18  56.68  56.39  56.23  55.97  55.66


WATER HEATING
SATURATION (%)
  EXISTING HOMES                54.55  54.08  54.39  55.16  55.35  54.78  53.67  52.46  51.54  50.99  50.90  50.99  50.70  50.45
  NEW HOMES                     50.88  45.43  48.69  54.14  56.47  53.96  48.02  42.08  38.91  38.43  40.72  43.72  44.59  44.49
  TOTAL HOUSING STOCK    56.94  54.44  53.82  54.22  55.13  55.38  54.76  53.54  52.21  51.24  50.70  50.67  50.82  50.64  50.32


COOKING
SATURATION (%)
  EXISTING HOMES                16.18  16.23  16.69  17.42  18.06  18.09  18.11  17.89  17.92  17.89  18.02  18.15  18.17  18.05
  NEW HOMES                     22.17  21.07  22.94  26.48  29.23  26.99  25.67  22.29  21.84  20.73  20.89  20.95  20.30  19.00
  TOTAL HOUSING STOCK    16.42  16.36  16.38  16.88  17.69  18.33  18.31  18.30  17.99  18.01  17.95  18.09  18.21  18.22  18.07


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES                 2.05   2.14   2.32   2.56   2.77   2.85   2.90   2.93   3.00   3.08   3.20   3.32   3.39   3.42
  NEW HOMES                      6.00   5.74   6.10   6.92   7.93   7.38   7.79   7.09   7.46   7.02   6.85   6.52   6.20   5.59
  TOTAL HOUSING STODR     2.14   2.17   2.25   2.44   2.70   2.90   2.96   3.02   3.03   3.11   3.17   3.20   3.39   3.45   3.47


RESIDENTIAL
CUSTOMERS                16.61  16.67  16.92  17.34  17.89  18.25  18.42  18.52  18.55  18.66  18.80  19.03  19.30  19.51  19.60

HOUSEHOLDS               28988  29588  30200  30826  31464  31914  32378  32833  33302  33779  34235  34697  35165  35640  36121
(TEN-THOUSANDS)
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#37 -- ADDABBO - HEINZ SCENARIO                                                      FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR MONTANA

                         1996   1997   1998   1999   2000
                         ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----


SPACE HEATING
SATURATION (%)
  EXISTING HOMES        55.51  55.11  54.71  54.27  53.80
  NEW HOMES             44.86  43.72  42.70  41.23  39.65
  TOTAL HOUSING STOCK   55.26  54.85  54.43  53.97  53.47


WATER HEATING
SATURATION (%)
  EXISTING HOMES        49.92  49.40  48.88  48.30  47.68
  NEW HOMES             43.30  42.23  41.29  39.93  38.45
  TOTAL HOUSING STOCK   49.77  49.23  48.71  48.18  47.47


COOKING
SATURATION (%)
  EXISTING HOMES        17.91  17.75  17.58  17.35  17.09
  NEW HOMES             17.83  16.73  15.74  14.55  13.38
  TOTAL HOUSING STOCK   17.91  17.73  17.54  17.28  17.00


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES         3.43   3.44   3.43   3.42   3.39
  NEW HOMES              5.27   4.95   4.67   4.32   3.97
  TOTAL HOUSING STODR    3.47   3.47   3.46   3.44   3.40


RESIDENTIAL
CUSTOMERS               19.83  19.97  20.10  20.22  20.32

HOUSEHOLDS              36609  37103  37604  38112  38626
(TEN-THOUSANDS)

AVERAGE ANNUAL GROWTH RATE OF RESIDENTIAL CUSTOMERS, 1981-2000:   1.07%
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#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

GAS DEMAND MODEL FOR NEBRASKA

ANNUAL SALES, SUPPLY AND PRICE OF GAS

YEAR	GAS SALES				GAS SUPPLY	ANNUAL SUPPLY DEFICIT	AVERAGE GAS PRICE			DEMAND WEIGHTED AVERAGE PRICE
	RESIDENTIAL	COMMERCIAL	INDUSTRIAL AND ALL OTHER	TOTAL SALES			RESIDENTIAL	COMMERCIAL AND ALL OTHER	INDUSTRIAL	
	(BCF)				(BCF)	(BCF)	($/MMBTU IN $1981)			
1981	41.97	33.61	47.24	122.81	.00	.00	3.44	2.99	2.75	3.05
1982	39.51	31.69	45.30	116.50	.00	.00	4.00	3.55	3.31	3.61
1983	39.49	31.04	44.23	114.76	.00	.00	4.13	3.68	3.44	3.74
1984	40.73	30.90	43.51	115.14	.00	.00	4.07	3.62	3.38	3.69
1985	43.07	31.22	43.27	117.56	.00	.00	3.91	3.46	3.22	3.54
1986	44.07	31.10	43.63	118.79	.00	.00	3.92	3.47	3.23	3.55
1987	43.97	30.28	44.09	118.34	.00	.00	4.15	3.70	3.46	3.78
1988	43.12	28.99	44.53	116.65	.00	.00	4.56	4.11	3.87	4.18
1989	42.33	27.68	44.82	114.82	.00	.00	5.01	4.56	4.32	4.63
1990	42.17	26.68	44.91	113.76	.00	.00	5.34	4.89	4.65	4.96
1991	42.73	26.08	44.86	113.67	.00	.00	5.50	5.05	4.81	5.12
1992	43.94	25.81	44.84	114.59	.00	.00	5.49	5.04	4.80	5.12
1993	45.39	25.65	45.08	116.12	.00	.00	5.44	4.99	4.75	5.07
1994	46.35	25.28	45.57	117.21	.00	.00	5.52	5.07	4.83	5.15
1995	47.05	24.83	46.20	118.09	.00	.00	5.66	5.21	4.97	5.30
1996	47.45	24.25	46.91	118.61	.00	.00	5.89	5.44	5.20	5.53
1997	47.88	23.69	47.62	119.20	.00	.00	6.12	5.67	5.43	5.75
1998	48.36	23.16	48.30	119.81	.00	.00	6.35	5.90	5.66	5.98
1999	48.70	22.58	49.02	120.30	.00	.00	6.62	6.17	5.93	6.25
2000	49.00	22.01	49.73	120.74	.00	.00	6.91	6.46	6.22	6.54

ANNUAL RATES OF GROWTH

1981-1985	.65%	-1.82%	-2.17%	-1.09%	.00%	.00%	3.25%	3.72%	4.02%	3.76%
1985-1990	-.42%	-3.09%	.75%	-.65%	.00%	.00%	6.43%	7.16%	7.63%	7.01%
1990-1995	2.21%	-1.42%	.57%	.75%	.00%	.00%	1.17%	1.28%	1.34%	1.31%
1995-2000	.82%	-2.39%	1.48%	.45%	.00%	.00%	4.07%	4.39%	4.59%	4.32%
1981-2000	.82%	-2.20%	.27%	-.09%	.00%	.00%	3.74%	4.14%	4.39%	4.10%

#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

GAS DEMAND MODEL FOR NEBRASKA

	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
SPACE HEATING SATURATION (%)															
EXISTING HOMES		72.57	72.66	73.05	73.68	74.04	74.01	73.70	73.29	72.96	72.79	72.82	72.96	72.98	72.93
NEW HOMES		82.59	78.98	81.41	84.99	86.12	84.41	80.17	75.11	71.90	71.30	73.34	75.85	76.44	76.25
TOTAL HOUSING STOCK	73.63	72.84	72.84	73.28	73.99	74.34	74.26	73.85	73.33	72.94	72.75	'2.84	73.03	73.06	73.01
WATER HEATING SATURATION (%)															
EXISTING HOMES		65.94	65.91	67.03	68.75	69.43	68.94	67.74	66.49	65.72	65.50	65.91	66.[illegible]2	66.65	66.59
NEW HOMES		81.75	78.28	80.77	84.38	85.54	83.87	79.73	74.86	71.80	71.26	73.25	75.71	76.32	76.16
TOTAL HOUSING STOCK	69.04	66.37	66.24	67.41	69.18	69.82	69.30	68.03	66.70	65.87	65.63	66.08	66.72	66.87	66.80
COOKING SATURATION (%)															
EXISTING HOMES		29.77	29.79	30.40	32.55	32.88	32.71	32.20	31.68	31.27	31.35	31.42	31.51	31.39	31.01
NEW HOMES		39.94	38.26	39.56	48.50	47.19	43.87	39.15	35.17	32.27	32.52	32.30	32.11	31.04	28.68
TOTAL HOUSING STOCK	30.44	30.04	30.03	30.65	32.99	33.23	32.98	32.37	31.77	31.29	31.38	31.44	31.52	31.38	30.95
CLOTHES DRYING SATURATION (%)															
EXISTING HOMES		9.84	9.94	10.40	11.53	11.83	11.78	11.55	11.32	11.20	11.32	11.50	11.69	11.72	11.61
NEW HOMES		17.59	16.88	16.58	21.60	19.99	18.61	17.30	16.47	15.45	16.08	15.31	14.37	13.45	11.83
TOTAL HOUSING STODR	10.36	10.05	10.13	10.57	11.81	12.03	11.95	11.69	11.45	11.31	11.43	11.59	11.75	11.76	11.61
RESIDENTIAL CUSTOMERS	38.76	38.81	39.47	40.59	42.31	43.18	43.66	43.86	44.01	44.32	44.83	45.52	46.29	46.88	47.34
HOUSEHOLDS (TEN-THOUSANDS)	58111	59139	60186	61251	62336	63258	64194	65144	66109	67087	67952	68829	69717	70616	71527

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#37 -- ADDABBO - HEINZ SCENARIO                                                           FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR NEBRASKA

                           1996   1997   1998   1999   2000
                           ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----


SPACE HEATING
SATURATION (%)
  EXISTING HOMES          72.79  72.63  72.46  72.24  71.98
  NEW HOMES               75.11  74.06  73.09  71.71  70.17
  TOTAL HOUSING STOCK     72.84  72.66  72.47  72.23  71.94


WATER HEATING
SATURATION (%)
  EXISTING HOMES          66.22  65.88  65.54  65.11  64.64
  NEW HOMES               75.09  74.11  73.21  71.90  70.46
  TOTAL HOUSING STOCK     66.42  66.06  65.72  65.27  64.77


COOKING
SATURATION (%)
  EXISTING HOMES          30.63  30.23  29.82  29.32  28.79
  NEW HOMES               26.84  25.13  23.55  21.72  19.96
  TOTAL HOUSING STOCK     30.54  30.11  29.68  29.15  28.59


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES          11.45  11.29  11.13  10.92  10.70
  NEW HOMES               11.02  10.26   9.54   8.73   7.97
  TOTAL HOUSING STODR     11.44  11.27  11.09  10.87  10.64


RESIDENTIAL
CUSTOMERS                 47.73  48.11  48.49  49.82  49.11

HOUSEHOLDS                72450  73384  74331  75290  76261
(TEN-THOUSANDS)

AVERAGE ANNUAL GROWTH RATE OF RESIDENTIAL CUSTOMERS, 1981-2000:   1.25%
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#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

GAS DEMAND MODEL FOR NEVADA

ANNUAL SALES, SUPPLY AND PRICE OF GAS

	GAS SALES						AVERAGE GAS PRICE			
YEAR	RESIDENTIAL	COMMERCIAL	INDUSTRIAL AND ALL OTHER	TOTAL SALES	GAS SUPPLY	ANNUAL SUPPLY DEFICIT	RESIDENTIAL	COMMERCIAL AND ALL OTHER	INDUSTRIAL	DEMAND WEIGHTED AVERAGE PRICE
	(BCF)				(BCF)	(BCF)	($/MMBTU IN $1981)			
1981	13.91	7.91	7.27	29.10	.00	.00	4.64	4.48	3.26	4.25
1982	13.26	7.62	6.36	27.23	.00	.00	5.20	5.04	3.82	4.83
1983	13.14	7.51	6.10	26.75	.00	.00	5.33	5.17	3.95	4.97
1984	13.40	7.51	5.99	26.89	.00	.00	5.27	5.11	3.89	4.92
1985	13.72	7.58	6.03	27.34	.00	.00	5.11	4.95	3.73	4.76
1986	13.71	7.58	6.14	27.44	.00	.00	5.12	4.96	3.74	4.77
1987	13.47	7.46	6.19	27.12	.00	.00	5.35	5.19	3.97	4.99
1988	12.99	7.24	6.14	26.38	.00	.00	5.76	5.60	4.38	5.39
1989	12.56	7.01	6.03	25.60	.00	.00	6.21	6.05	4.83	5.84
1990	12.24	6.82	5.91	24.97	.00	.00	6.54	6.38	5.16	6.17
1991	12.07	6.71	5.81	24.59	.00	.00	6.70	6.54	5.32	6.33
1992	12.05	6.66	5.79	24.50	.00	.00	6.69	6.53	5.31	6.32
1993	12.01	6.64	5.84	24.50	.00	.00	6.64	6.48	5.26	6.27
1994	11.87	6.58	5.91	24.36	.00	.00	6.72	6.56	5.34	6.34
1995	11.87	6.51	6.00	24.38	.00	.00	6.86	6.70	5.48	6.48
1996	11.63	6.40	6.06	24.08	.00	.00	7.09	6.93	5.71	6.70
1997	11.40	6.30	6.11	23.81	.00	.00	7.32	7.16	5.94	6.92
1998	11.18	6.20	6.14	23.52	.00	.00	7.55	7.39	6.17	7.15
1999	11.18	6.09	6.10	23.37	.00	.00	7.82	7.66	6.44	7.41
2000	10.85	5.98	6.21	23.04	.00	.00	8.11	7.95	6.73	7.70

ANNUAL RATES OF GROWTH

1981-1985	-.34%	-1.05%	-4.58%	-1.55%	.00%	.00%	2.44%	2.53%	3.42%	2.87%
1985-1990	-2.27%	-2.10%	-.40%	-1.80%	.00%	.00%	5.06%	5.21%	6.71%	5.32%
1990-1995	-.60%	-.94%	.30%	-.48%	.00%	.00%	.96%	.98%	1.21%	.98%
1995-2000	-1.78%	-1.67%	.70%	-1.12%	.00%	.00%	3.40%	3.48%	4.19%	3.51%
1981-2000	-1.30%	-1.46%	-.83%	-1.22%	.00%	.00%	2.98%	3.06%	3.89%	3.17%

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#37 -- ADDABBO - HEINZ SCENARIO                                                       FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR NEVADA

                          1981   1982   1983   1984   1985   1986   1987   1988   1989   1990   1991   1992   1993   1994   1995
                          ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----


SPACE HEATING
SATURATION (%)
  EXISTING HOMES                 47.50  45.41  43.37  41.50  39.65  38.07  36.38  34.67  33.03  31.51  30.27  29.10  27.92  26.77
  NEW HOMES                      15.72  11.32  10.96  11.37  11.03   9.12   6.69   4.85   3.84   3.43   3.40   3.45   3.23   2.92
  TOTAL HOUSING STOCK    48.15   45.58  43.35  41.42  39.69  38.25  36.66  34.94  33.22  31.61  30.29  29.10  27.98  26.85  25.73


WATER HEATING
SATURATION (%)
  EXISTING HOMES                 43.27  40.75  38.78  37.11  35.23  33.36  31.29  29.28  27.52  26.04  24.94  23.93  22.84  21.74
  NEW HOMES                      11.37   8.20   7.93   8.22   7.96   6.59   4.85   3.53   2.81   2.51   2.48   2.52   2.36   2.14
  TOTAL HOUSING STOCK    45.27   41.35  38.79  36.93  35.37  33.90  32.05  30.00  28.02  26.31  25.01  23.96  23.00  21.94  20.88


COOKING
SATURATION (%)
  EXISTING HOMES                 28.23  27.26  27.63  27.65  27.15  26.70  25.72  25.02  24.14  23.63  23.24  22.48  21.62  22.14
  NEW HOMES                      16.78  16.17  20.49  22.70  21.80  21.40  18.06  17.17  15.20  15.18  15.17  13.24  11.31  15.32
  TOTAL HOUSING STOCK    29.04   27.54  26.59  27.28  27.35  26.89  26.45  25.35  24.64  23.70  23.26  22.88  22.08  21.17  21.84


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES                  1.89   2.14   2.54   3.02   3.44   3.71   3.89   4.08   4.27   4.52   4.77   4.92   4.98   5.30
  NEW HOMES                       6.88   7.16   9.78  10.73  10.32  10.91  10.13  10.87  10.37  10.82  10.84   9.29   7.95  11.50
  TOTAL HOUSING STODR     2.01    2.19   2.45   2.97   3.49   3.78   4.06   4.20   4.41   4.57   4.79   5.03   5.11   5.11   5.57


RESIDENTIAL
CUSTOMERS                17.35   17.46  17.76  18.37  18.99  19.34  19.62  19.74  19.92  20.09  20.32  20.62  20.84  21.02  21.53

HOUSEHOLDS               32023   33733  35535  37432  39431  41040  42715  44457  46271  48159  49854  51609  53426  55306  57253
(TEN-THOUSANDS)
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#37 -- ADDABBO - HEINZ SCENARIO                                                           FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR NEVADA

                          1996  1997  1998  1999  2000
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SPACE HEATING
SATURATION (%)
  EXISTING HOMES         25.63 24.53 23.47 22.44 21.45
  NEW HOMES               2.54  2.22  1.95  1.68  1.43
  TOTAL HOUSING STOCK    24.63 23.56 22.53 21.53 20.57


WATER HEATING
SATURATION (%)
  EXISTING HOMES         20.61 19.54 18.52 17.53 16.59
  NEW HOMES               1.86  1.63  1.43  1.24  1.06
  TOTAL HOUSING STOCK    19.79 18.76 17.78 16.82 15.91


COOKING
SATURATION (%)
  EXISTING HOMES         21.25 20.41 19.55 19.81 18.92
  NEW HOMES              12.53 10.67  9.11 11.98  9.64
  TOTAL HOUSING STOCK    20.87 19.98 19.09 19.47 18.52


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES          5.37  5.39  5.37  5.62  5.64
  NEW HOMES               9.91  8.83  7.84 11.08  9.52
  TOTAL HOUSING STODR     5.57  5.54  5.48  5.86  5.81


RESIDENTIAL
CUSTOMERS                21.68 21.85 22.02 22.51 22.67

HOUSEHOLDS               59268 61355 63514 65750 68065
(TEN-THOUSANDS)

AVERAGE ANNUAL GROWTH RATE OF RESIDENTIAL CUSTOMERS, 1981-2000:   1.42%
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#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

GAS DEMAND MODEL FOR NEW HMP.

ANNUAL SALES, SUPPLY AND PRICE OF GAS

	GAS SALES						AVERAGE GAS PRICE			
YEAR	RESIDENTIAL	COMMERCIAL	INDUSTRIAL AND ALL OTHER	TOTAL SALES	GAS SUPPLY	ANNUAL SUPPLY DEFICIT	RESIDENTIAL	COMMERCIAL AND ALL OTHER	INDUSTRIAL	DEMAND WEIGHTED AVERAGE PRICE
	(BCF)				(BCF)	(BCF)	($/MMBTU IN $1981)			
1981	4.61	2.86	2.42	9.89	.00	.00	5.26	4.88	4.47	4.96
1982	4.52	2.77	2.23	9.52	.00	.00	5.82	5.44	5.03	5.52
1983	4.62	2.74	2.18	9.54	.00	.00	5.95	5.57	5.16	5.66
1984	4.84	2.75	2.16	9.74	.00	.00	5.89	5.51	5.10	5.61
1985	5.16	2.79	2.15	10.10	.00	.00	5.73	5.35	4.94	5.46
1986	5.36	2.80	2.18	10.34	.00	.00	5.74	5.36	4.95	5.47
1987	5.50	2.77	2.21	10.48	.00	.00	5.97	5.59	5.18	5.70
1988	5.49	2.71	2.24	10.43	.00	.00	6.38	6.00	5.59	6.11
1989	5.45	2.63	2.26	10.34	.00	.00	6.83	6.45	6.04	6.56
1990	5.47	2.58	2.27	10.32	.00	.00	7.16	6.78	6.37	6.89
1991	5.54	2.54	2.28	10.37	.00	.00	7.32	6.94	6.53	7.05
1992	5.68	2.54	2.29	10.51	.00	.00	7.31	6.93	6.52	7.05
1993	5.84	2.54	2.32	10.71	.00	.00	7.26	6.88	6.47	7.00
1994	5.95	2.53	2.36	10.84	.00	.00	7.34	6.96	6.55	7.08
1995	6.04	2.52	2.40	10.95	.00	.00	7.48	7.10	6.69	7.22
1996	6.09	2.49	2.43	11.01	.00	.00	7.71	7.33	6.92	7.45
1997	6.14	2.47	2.47	11.08	.00	.00	7.94	7.56	7.15	7.68
1998	6.20	2.44	2.51	11.15	.00	.00	8.17	7.79	7.38	7.91
1999	6.24	2.41	2.54	11.19	.00	.00	8.44	8.06	7.65	8.18
2000	6.27	2.38	2.57	11.23	.00	.00	8.73	8.35	7.94	8.47

ANNUAL RATES OF GROWTH

1981-1985	2.86%	-.66%	-2.09%	.52%	.00%	.00%	2.16%	2.33%	2.53%	2.43%
1985-1990	1.19%	-1.55%	1.07%	.43%	.00%	.00%	4.56%	4.85%	5.22%	4.78%
1990-1995	1.98%	-.47%	1.08%	1.19%	.00%	.00%	.88%	.93%	.99%	.94%
1995-2000	.77%	-1.10%	1.44%	.50%	.00%	.00%	3.14%	3.30%	3.49%	3.24%
1981-2000	1.64%	-.96%	.32%	.67%	.00%	.00%	2.70%	2.87%	3.07%	2.86%

#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

GAS DEMAND MODEL FOR NEW HMP.

	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
SPACE HEATING SATURATION (%)															
EXISTING HOMES		11.95	12.27	12.47	12.72	13.01	13.22	13.33	13.32	13.24	13.15	13.08	13.04	13.00	12.95
NEW HOMES		21.07	17.09	18.07	20.20	20.78	18.84	15.50	12.58	10.98	10.58	11.14	11.96	12.02	11.73
TOTAL HOUSING STOCK	12.09	12.30	12.45	12.68	13.00	13.27	13.41	13.40	13.30	13.17	13.07	13.02	13.01	12.97	12.92
WATER HEATING SATURATION (%)															
EXISTING HOMES		14.11	14.21	14.37	14.63	14.79	14.79	14.61	14.34	14.07	13.88	13.79	13.75	13.65	13.52
NEW HOMES		19.35	15.81	16.72	18.66	19.17	17.40	14.37	11.72	10.25	9.88	10.37	11.11	11.15	10.88
TOTAL HOUSING STOCK	14.65	14.31	14.27	14.46	14.78	14.94	14.87	14.60	14.25	13.95	13.76	13.69	13.67	13.58	13.45
COOKING SATURATION (%)															
EXISTING HOMES		11.62	11.77	12.06	12.54	12.77	13.06	12.99	12.86	12.76	12.75	12.73	12.69	12.59	12.41
NEW HOMES		16.74	16.32	16.97	19.07	18.57	19.58	16.86	14.62	13.41	13.02	12.56	12.06	11.33	10.22
TOTAL HOUSING STOCK	11.88	11.81	11.94	12.25	12.78	12.96	13.28	13.12	12.92	12.78	12.75	12.72	12.67	12.56	12.35
CLOTHES DRYING SATURATION (%)															
EXISTING HOMES		4.41	4.29	4.29	4.36	4.29	4.23	4.04	3.86	3.73	3.65	3.59	3.54	3.46	3.35
NEW HOMES		2.20	2.17	2.14	2.32	2.15	2.45	2.16	1.94	1.82	1.75	1.59	1.42	1.27	1.09
TOTAL HOUSING STODR	4.63	4.33	4.21	4.21	4.28	4.21	4.17	3.98	3.80	3.66	3.59	3.54	3.48	3.39	3.28
RESIDENTIAL CUSTOMERS	4.55	4.66	4.83	5.05	5.34	5.55	5.74	5.83	5.89	5.96	6.03	6.12	6.23	6.31	6.36
HOUSEHOLDS (TEN-THOUSANDS)	33221	34167	35141	36143	37173	38072	38994	39937	40904	41894	42690	43501	44327	45170	46028

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#37 -- ADDABBO - HEINZ SCENARIO                                                    FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR NEW HMP.

                          1996   1997   1998   1999   2000
                          ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----


SPACE HEATING
SATURATION (%)
  EXISTING HOMES         12.88  12.80  12.70  12.59  12.46
  NEW HOMES              11.08  10.50   9.98   9.34   8.69
  TOTAL HOUSING STOCK    12.83  12.73  12.63  12.50  12.36


WATER HEATING
SATURATION (%)
  EXISTING HOMES         13.34  13.16  12.97  12.76  12.53
  NEW HOMES              10.28   9.74   9.26   8.67   8.08
  TOTAL HOUSING STOCK    13.26  13.06  12.86  12.64  12.40


COOKING
SATURATION (%)
  EXISTING HOMES         12.22  12.02  11.85  11.62  11.39
  NEW HOMES               9.38   8.65   8.17   7.48   6.90
  TOTAL HOUSING STOCK    12.14  11.93  11.74  11.50  11.26


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES          3.24   3.13   3.04   2.93   2.83
  NEW HOMES                .98    .89    .84    .76    .70
  TOTAL HOUSING STODR     3.17   3.07   2.97   2.87   2.77


RESIDENTIAL
CUSTOMERS                 6.41   6.45   6.50   6.53   6.55

HOUSEHOLDS               46902  47793  48701  49627  50570
(TEN-THOUSANDS)

AVERAGE ANNUAL GROWTH RATE OF RESIDENTIAL CUSTOMERS, 1981-2000:   1.94%
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#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

GAS DEMAND MODEL FOR NEW JER.

ANNUAL SALES, SUPPLY AND PRICE OF GAS

	GAS SALES						AVERAGE GAS PRICE			
YEAR	RESIDENTIAL	COMMERCIAL	INDUSTRIAL AND ALL OTHER	TOTAL SALES	GAS SUPPLY	ANNUAL SUPPLY DEFICIT	RESIDENTIAL	COMMERCIAL AND ALL OTHER	INDUSTRIAL	DEMAND WEIGHTED AVERAGE PRICE
	(BCF)				(BCF)	(BCF)	($/MMBTU IN $1981)			
1981	152.64	75.37	87.13	315.14	.00	.00	5.92	5.48	4.50	5.42
1982	147.08	73.25	71.71	292.04	.00	.00	6.48	6.04	5.06	6.02
1983	147.69	72.65	69.99	290.53	.00	.00	6.61	6.17	5.19	6.16
1984	152.66	72.85	69.77	295.29	.00	.00	6.55	6.11	5.13	6.11
1985	159.62	73.75	71.01	304.38	.00	.00	6.39	5.95	4.97	5.95
1986	164.55	74.08	73.19	311.82	.00	.00	6.40	5.96	4.90	5.96
1987	167.38	73.46	74.58	315.42	.00	.00	6.63	6.19	5.21	6.19
1988	167.64	72.02	74.98	314.64	.00	.00	7.04	6.60	5.62	6.60
1989	167.85	70.39	74.76	313.01	.00	.00	7.49	7.05	6.07	7.05
1990	169.77	69.16	74.24	313.18	.00	.00	7.82	7.38	6.40	7.39
1991	173.19	68.49	74.09	315.76	.00	.00	7.98	7.54	6.56	7.55
1992	178.37	68.45	74.71	321.53	.00	.00	7.97	7.53	6.55	7.55
1993	184.30	68.67	76.44	329.41	.00	.00	7.92	7.48	6.50	7.50
1994	188.90	68.54	78.30	335.75	.00	.00	8.00	7.56	6.58	7.58
1995	192.61	68.26	79.94	340.82	.00	.00	8.14	7.70	6.72	7.72
1996	195.61	67.73	81.39	344.73	.00	.00	8.37	7.93	6.95	7.95
1997	198.82	67.21	82.95	348.99	.00	.00	8.60	8.16	7.18	8.18
1998	202.04	66.72	84.10	352.86	.00	.00	8.83	8.39	7.41	8.41
1999	205.00	66.12	85.12	356.24	.00	.00	9.10	8.66	7.68	8.68
2000	207.66	65.48	86.14	359.29	.00	.00	9.39	8.95	7.97	8.97

ANNUAL RATES OF GROWTH

1981-1985	1.12%	-.54%	-4.98%	-.86%	.00%	.00%	1.93%	2.08%	2.51%	2.36%
1985-1990	1.24%	-1.28%	.89%	.57%	.00%	.00%	4.12%	4.40%	5.19%	4.41%
1990-1995	2.56%	-.26%	1.49%	1.71%	.00%	.00%	.81%	.85%	.98%	.88%
1995-2000	1.52%	-.83%	1.50%	1.06%	.00%	.00%	2.90%	3.05%	3.47%	3.05%
1981-2000	1.63%	-.74%	-.06%	.69%	.00%	.00%	2.46%	2.62%	3.05%	2.68%

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#37 -- ADDABBO - HEINZ SCENARIO                                                                          FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR NEW JER.

                            1981   1982   1983   1984   1985   1986   1987   1988   1989   1990   1991   1992   1993   1994   1995
                            ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----

SPACE HEATING
SATURATION (%)
  EXISTING HOMES                   44.01  44.52  45.03  45.66  46.23  46.65  46.89  47.00  47.05  47.12  47.26  47.45  47.62  47.76
  NEW HOMES                        64.35  59.23  61.51  65.19  66.35  64.32  59.78  54.87  51.84  51.36  53.13  55.43  56.03  55.88
  TOTAL HOUSING STOCK      44.46   44.58  44.93  45.49  46.20  46.77  47.13  47.24  47.21  47.18  47.22  47.39  47.63  47.81  47.94


WATER HEATING
SATURATION (%)
  EXISTING HOMES                   52.36  52.55  53.29  54.31  54.82  54.77  54.27  53.65  53.21  53.07  53.28  53.60  53.68  53.65
  NEW HOMES                        66.35  61.59  63.75  67.18  68.20  66.24  61.91  57.19  54.23  53.70  55.33  57.46  57.96  57.76
  TOTAL HOUSING STOCK      54.15   52.75  52.80  53.58  54.67  55.19  55.08  54.48  53.74  53.24  53.08  53.32  53.69  53.78  53.75


COOKING
SATURATION (%)
  EXISTING HOMES                   62.63  61.94  62.21  62.59  62.19  61.68  60.26  58.93  57.94  57.35  56.75  56.14  55.30  54.10
  NEW HOMES                        46.11  44.62  45.50  46.53  45.63  44.86  41.18  38.10  36.21  35.49  34.13  32.79  30.93  28.05
  TOTAL HOUSING STOCK      64.03   62.17  61.45  61.75  62.14  61.74  61.22  59.75  58.37  57.35  56.85  56.24  55.62  54.75  53.51


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES                   16.71  16.97  17.66  18.39  18.65  18.69  18.36  18.03  17.84  17.82  17.83  17.81  17.62  17.25
  NEW HOMES                        28.80  27.14  25.99  24.56  22.69  22.08  20.00  18.47  17.28  16.33  14.35  12.38  10.63   8.61
  TOTAL HOUSING STODR      17.48   17.05  17.25  17.90  18.56  18.76  18.78  18.41  18.04  17.82  17.79  17.75  17.69  17.46  17.06


RESIDENTIAL
CUSTOMERS                 169.27 169.77 172.57 177.20 182.39 186.15 189.18 190.57 191.80 193.60 195.43 197.58 199.93 201.71 202.88

HOUSEHOLDS                259488 264263 269125 274077 279120 284033 289032 294119 299295 304563 308461 312410 316408 320458 324560
(TEN-THOUSANDS)
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#37 -- ADDABBO - HEINZ SCENARIO                                                          FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR NEW JER.

                          1996  1997  1998  1999  2000
                          ----  ----  ----  ----  ----  ----  ----  ----  ----  ----  ----  ----  ----  ----  ----


SPACE HEATING
SATURATION (%)
  EXISTING HOMES         47.84 47.91 47.96 47.97 47.94
  NEW HOMES              54.92 54.04 53.24 52.05 50.73
  TOTAL HOUSING STOCK    48.00 48.05 48.07 48.06 48.01


WATER HEATING
SATURATION (%)
  EXISTING HOMES         53.45 53.23 53.02 52.73 52.40
  NEW HOMES              56.77 55.86 55.02 53.81 52.48
  TOTAL HOUSING STOCK    53.52 53.29 53.06 52.75 52.40


COOKING
SATURATION (%)
  EXISTING HOMES         52.98 51.97 50.91 49.91 48.79
  NEW HOMES              25.83 24.12 22.33 20.87 19.20
  TOTAL HOUSING STOCK    52.37 51.35 50.27 49.25 48.13


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES         16.86 16.49 16.10 15.72 15.30
  NEW HOMES               7.34  6.41  5.51  4.86  4.19
  TOTAL HOUSING STODR    16.64 16.27 15.87 15.48 15.05


RESIDENTIAL
CUSTOMERS               203.93 205.10 206.17 207.20 208.00

HOUSEHOLDS              328715 332922 337183 341499 345871
(TEN-THOUSANDS)

AVERAGE ANNUAL GROWTH RATE OF RESIDENTIAL CUSTOMERS, 1981-2000:   1.09%
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#37 -- ADDABBO - HEINZ SCENARIO                                                                              FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR NEW MEX.

                                                   ANNUAL SALES, SUPPLY AND PRICE OF GAS

                          GAS SALES                                                              AVERAGE GAS PRICE
           ----------------------------------------------                           ----------------------------------------      DEMAND
                                   INDUSTRIAL                              ANNUAL                 COMMERCIAL                      WEIGHTED
                                      AND          TOTAL        GAS        SUPPLY                    AND                          AVERAGE
YEAR   RESIDENTIAL  COMMERCIAL    ALL OTHER       SALES       SUPPLY      DEFICIT    RESIDENTIAL  ALL OTHER    INDUSTRIAL      PRICE
----   ----------   ----------   ----------   ----------   ----------   ----------   ----------   ----------   ----------   ----------
       -------------------( BCF )-------------------     ( BCF )      ( BCF )      ---------------( $/MMBTU IN $1981 )---------------
1981      23.23        18.99        27.35        69.57         .00          .00         3.65         3.33         2.87         3.26
1982      21.89        18.04        23.95        63.88         .00          .00         4.21         3.89         3.43         3.83
1983      21.92        17.72        22.92        62.57         .00          .00         4.34         4.02         3.56         3.96
1984      22.68        17.70        22.42        62.81         .00          .00         4.20         3.96         3.50         3.91
1985      23.86        17.91        22.51        64.28         .00          .00         4.12         3.80         3.34         3.76
1986      24.40        17.89        22.94        65.22         .00          .00         4.13         3.81         3.35         3.77
1987      24.27        17.50        23.09        64.86         .00          .00         4.36         4.04         3.58         4.00
1988      23.74        16.85        22.89        63.48         .00          .00         4.77         4.45         3.99         4.48
1989      23.23        16.17        22.45        61.85         .00          .00         5.22         4.90         4.44         4.85
1990      23.08        15.65        21.95        60.69         .00          .00         5.55         5.23         4.77         5.19
1991      23.30        15.35        21.56        60.20         .00          .00         5.71         5.39         4.93         5.35
1992      23.94        15.23        21.43        60.59         .00          .00         5.70         5.30         4.92         5.34
1993      24.57        15.17        21.59        61.33         .00          .00         5.65         5.33         4.87         5.30
1994      25.18        15.01        21.88        62.07         .00          .00         5.73         5.41         4.95         5.38
1995      25.40        14.79        22.12        62.32         .00          .00         5.87         5.55         5.09         5.52
1996      25.69        14.51        22.34        62.54         .00          .00         6.10         5.70         5.32         5.75
1997      25.77        14.23        22.53        62.52         .00          .00         6.33         6.01         5.55         5.98
1998      26.10        13.96        22.68        62.74         .00          .00         6.56         6.24         5.78         6.21
1999      26.13        13.67        22.70        62.50         .00          .00         6.83         6.51         6.05         6.48
2000      26.34        13.38        22.88        62.60         .00          .00         7.12         6.80         6.34         6.77


ANNUAL RATES OF GROWTH
----------------------

1981-1985     .67%       -1.46%       -4.75%       -1.96%        .00%         .00%        3.07%        3.36%        3.86%        3.65%
1985-1990   -.66%        -2.66%        -.50%       -1.14%        .00%         .00%        6.14%        6.60%        7.39%        6.65%
1990-1995    1.93%       -1.13%         .15%         .53%        .00%         .00%        1.13%        1.19%        1.31%        1.25%
1995-2000     .73%       -1.99%         .68%         .09%        .00%         .00%        3.94%        4.15%        4.49%        4.17%
---------
1981-2000     .66%       -1.83%        -.93%        -.55%        .00%         .00%        3.58%        3.83%        4.26%        3.92%
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037 -- ADDABBO - HEINZ SCENARIO                                                        FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR NEW MEX.

                            1981   1982   1983   1984   1985   1986   1987   1988   1989   1990   1991   1992   1993   1994   1995
                            ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----

SPACE HEATING
SATURATION (%)
  EXISTING HOMES                   75.30  75.12  75.05  75.23  75.24  74.93  74.31  73.54  72.77  72.12  71.74  71.47  71.12  70.73
  NEW HOMES                        74.29  68.65  70.75  74.67  75.96  73.16  66.93  60.02  55.69  54.76  56.94  59.82  60.36  59.88
  TOTAL HOUSING STOCK      76.47   75.34  74.88  74.89  75.21  75.26  74.88  74.10  73.14  72.28  71.68  71.36  71.18  70.85  70.45


WATER HEATING
SATURATION (%)
  EXISTING HOMES                   71.84  71.18  71.61  72.62  72.79  71.07  70.22  68.48  67.15  66.37  66.26  66.36  66.04  65.54
  NEW HOMES                        71.90  66.34  68.52  72.54  73.88  71.07  64.89  58.13  53.96  53.09  55.25  58.07  58.63  58.20
  TOTAL HOUSING STOCK      75.22   71.84  71.08  71.49  72.62  72.82  71.05  70.07  68.18  66.77  66.03  65.98  66.15  65.85  65.36


COOKING
SATURATION (%)
  EXISTING HOMES                   48.07  47.38  47.61  48.16  48.07  47.20  45.97  44.74  43.72  43.12  42.99  42.01  42.37  41.04
  NEW HOMES                        28.69  29.14  31.71  34.94  36.12  34.23  31.29  28.64  26.77  26.35  27.09  24.33  27.08  22.99
  TOTAL HOUSING STOCK      48.92   47.35  46.71  47.02  47.67  47.72  46.82  45.54  44.27  43.23  42.70  42.58  41.56  41.99  40.58


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES                    7.97   8.13   8.61   9.21   9.60   9.65   9.57   9.50   9.52   9.69   9.98  10.06  10.38  10.28
  NEW HOMES                        13.42  14.43  15.49  16.42  16.94  16.75  16.71  16.78  16.62  16.72  16.94  14.11  16.41  13.32
  TOTAL HOUSING STODR       8.37    8.17   8.36   8.87   9.48   9.81   9.86   9.78   9.71   9.73   9.87  10.15  10.16  10.53  10.35


RESIDENTIAL
CUSTOMERS                  28.46   28.42  28.93  29.87  31.04  31.70  31.95  31.95  31.88  31.93  32.10  32.51  32.78  33.28  33.33

HOUSEHOLDS                 45339   46613  47923  49270  50654  51652  52670  53707  54765  55844  56721  57612  58516  59435  60368
(TEN-THOUSANDS)
```

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#37 -- ADDABBO - HEINZ SCENARIO                                                FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR NEW MEX.

                        1996   1997   1998   1999   2000
                        ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----


SPACE HEATING
SATURATION (%)
  EXISTING HOMES       70.24  69.73  69.20  68.62  68.01
  NEW HOMES            58.22  56.68  55.27  53.36  51.31
  TOTAL HOUSING STOCK  69.93  69.40  68.85  68.24  67.58


WATER HEATING
SATURATION (%)
  EXISTING HOMES       64.77  64.01  63.26  62.42  61.54
  NEW HOMES            56.60  55.13  53.79  51.97  50.02
  TOTAL HOUSING STOCK  64.56  63.79  63.02  62.16  61.25


COOKING
SATURATION (%)
  EXISTING HOMES       40.98  39.63  39.57  38.23  37.92
  NEW HOMES            24.54  20.79  22.33  18.86  19.60
  TOTAL HOUSING STOCK  40.56  39.15  39.13  37.74  37.46


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES       10.42  10.26  10.40  10.23  10.28
  NEW HOMES            15.32  12.67  14.64  12.14  13.57
  TOTAL HOUSING STODR  10.54  10.32  10.51  10.27  10.36


RESIDENTIAL
CUSTOMERS              33.62  33.58  33.86  33.78  33.95

HOUSEHOLDS             61316  62278  63256  64249  65258
(TEN-THOUSANDS)

AVERAGE ANNUAL GROWTH RATE OF RESIDENTIAL CUSTOMERS, 1981-2000:     .93%
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#37 -- ADDABBO - HEINZ SCENARIO                                                                      FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR NY-EAST

                                                   ANNUAL SALES, SUPPLY AND PRICE OF GAS

                         GAS SALES                                                                AVERAGE GAS PRICE
           -----------------------------------------------                              ----------------------------------    DEMAND
                                  INDUSTRIAL                                  ANNUAL                 COMMERCIAL                WEIGHTED
                                     AND          TOTAL         GAS           SUPPLY                    AND                     AVERAGE
YEAR   RESIDENTIAL  COMMERCIAL   ALL OTHER       SALES        SUPPLY        DEFICIT    RESIDENTIAL   ALL OTHER    INDUSTRIAL     PRICE
----   ----------   ----------   ----------   ----------   ----------    ----------    ----------   ----------    ----------   ----------
       --------------------( BCF )-------------------      ( BCF )       ( BCF )       --------------($/MMBTU IN $1981)---------------
1981       208.83        94.93        74.37       378.14          .00           .00          5.20         4.49          3.90         4.77
1982       199.05        91.18        61.21       351.45          .00           .00          5.76         5.05          4.46         5.35
1983       197.63        89.75        59.52       346.90          .00           .00          5.89         5.18          4.59         5.48
1984       200.83        89.47        59.18       349.48          .00           .00          5.83         5.12          4.53         5.43
1985       206.70        90.20        60.18       357.08          .00           .00          5.67         4.96          4.37         5.27
1986       209.93        90.07        62.01       362.00          .00           .00          5.68         4.97          4.30         5.28
1987       210.55        88.55        63.11       362.21          .00           .00          5.91         5.20          4.61         5.51
1988       208.68        85.90        63.29       357.87          .00           .00          6.32         5.61          5.02         5.92
1989       207.07        83.05        62.91       353.03          .00           .00          6.77         6.06          5.47         6.37
1990       207.72        80.83        62.27       350.82          .00           .00          7.10         6.39          5.80         6.71
1991       210.78        79.50        61.95       352.23          .00           .00          7.26         6.55          5.96         6.87
1992       216.04        79.00        62.32       357.36          .00           .00          7.25         6.54          5.95         6.87
1993       222.15        78.82        63.64       364.62          .00           .00          7.20         6.49          5.90         6.82
1994       226.79        78.19        65.11       370.10          .00           .00          7.28         6.57          5.98         6.90
1995       230.62        77.36        66.40       374.38          .00           .00          7.42         6.71          6.12         7.04
1996       233.59        76.20        67.52       377.32          .00           .00          7.65         6.94          6.35         7.27
1997       236.85        75.08        68.72       380.65          .00           .00          7.88         7.17          6.58         7.51
1998       240.20        74.00        69.58       383.78          .00           .00          8.11         7.40          6.81         7.74
1999       243.30        72.81        70.33       386.44          .00           .00          8.38         7.67          7.08         8.01
2000       246.21        71.57        71.08       388.87          .00           .00          8.67         7.96          7.37         8.30


ANNUAL RATES OF GROWTH
----------------------

1981-1985    -.26%       -1.27%       -5.16%       -1.42%         .00%          .00%         2.19%        2.52%         2.89%        2.55%
1985-1990     .10%       -2.17%         .68%        -.35%         .00%          .00%         4.60%        5.20%         5.83%        4.93%
1990-1995    2.11%        -.87%        1.29%        1.31%         .00%          .00%          .89%         .98%         1.08%         .99%
1995-2000    1.32%       -1.54%        1.37%         .76%       . .00%          .00%         3.16%        3.48%         3.79%        3.34%
---------
1981-2000     .87%       -1.48%        -.24%         .15%         .00%          .00%         2.73%        3.06%         3.41%        2.96%
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#37 -- ADDABBO - HEINZ SCENARIO                                                   FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR NY-EAST

                          1981   1982   1983   1984   1985   1986   1987   1988   1989   1990   1991   1992   1993   1994   1995
                          ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----

SPACE HEATING
SATURATION (%)
  EXISTING HOMES                21.66  21.53  21.45  21.44  21.41  21.34  21.20  21.04  20.88  20.77  20.71  20.68  20.64  20.60
  NEW HOMES                     14.91  12.92  14.85  18.04  19.90  19.31  17.05  14.92  14.06  14.32  15.87  17.90  18.94  19.51
  TOTAL HOUSING STOCK    21.89  21.55  21.39  21.34  21.39  21.39  21.31  21.15  20.95  20.79  20.68  20.64  20.64  20.62  20.58


WATER HEATING
SATURATION (%)
  EXISTING HOMES                27.97  27.69  27.80  28.06  28.06  27.77  27.26  26.72  26.33  26.10  26.08  26.13  26.05  25.91
  NEW HOMES                     14.91  13.04  14.93  18.02  19.80  19.23  17.05  14.99  14.15  14.39  15.87  17.80  18.78  19.30
  TOTAL HOUSING STOCK    28.96  27.76  27.46  27.59  27.90  27.95  27.65  27.12  26.56  26.17  25.95  25.95  26.02  25.95  25.82


COOKING
SATURATION (%)
  EXISTING HOMES                28.80  28.93  29.54  30.23  30.51  30.66  30.31  29.99  29.85  29.89  29.89  29.88  29.72  29.35
  NEW HOMES                     41.39  39.84  40.73  41.87  40.97  40.04  36.21  33.04  31.10  30.35  29.11  27.90  26.17  23.53
  TOTAL HOUSING STOCK    29.47  29.00  29.11  29.72  30.42  30.65  30.70  30.39  30.04  29.86  29.90  29.88  29.86  29.68  29.28


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES                 3.55   3.81   4.19   4.61   4.91   5.11   5.20   5.28   5.42   5.60   5.78   5.96   6.07   6.10
  NEW HOMES                     19.89  19.85  19.90  19.85  19.63  19.35  18.07  18.29  17.68  17.06  15.95  14.63  13.24  11.43
  TOTAL HOUSING STODR     3.71   3.81   4.07   4.45   4.85   5.11   5.30   5.30   5.46   5.58   5.75   5.92   6.07   6.16   6.17


RESIDENTIAL
CUSTOMERS               227.00 226.17 227.27 229.73 232.63 233.93 234.63 234.17 233.70 233.70 234.15 234.84 235.65 236.05 236.02

HOUSEHOLDS              389177 391628 394096 396578 399077 400553 402035 403523 405016 406515 407815 409121 410430 411743 413061
(TEN-THOUSANDS)
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#37 -- ADDABBO - HEINZ SCENARIO                                                            FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR NY-EAST

                           1996   1997   1998   1999   2000
                           ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----


SPACE HEATING
SATURATION (%)
  EXISTING HOMES          20.54  20.49  20.44  20.39  20.33
  NEW HOMES               19.50  19.55  19.67  19.52  19.30
  TOTAL HOUSING STOCK     20.53  20.48  20.43  20.37  20.31


WATER HEATING
SATURATION (%)
  EXISTING HOMES          25.69  25.49  25.29  25.06  24.83
  NEW HOMES               19.27  19.30  19.39  19.23  19.00
  TOTAL HOUSING STOCK     25.61  25.40  25.21  24.99  24.75


COOKING
SATURATION (%)
  EXISTING HOMES          29.01  28.72  28.39  28.07  27.69
  NEW HOMES               21.48  19.91  18.30  16.98  15.50
  TOTAL HOUSING STOCK     28.91  28.60  28.25  27.93  27.53


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES           6.11   6.12   6.11   6.08   6.04
  NEW HOMES               10.06   8.93   7.79   6.98   5.97
  TOTAL HOUSING STODR      6.16   6.16   6.13   6.10   6.03


RESIDENTIAL
CUSTOMERS                235.92 235.92 235.86 235.79 235.59

HOUSEHOLDS               414383 415709 417039 418373 419712
(TEN-THOUSANDS)

AVERAGE ANNUAL GROWTH RATE OF RESIDENTIAL CUSTOMERS, 1981-2000:     .20%
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#37 -- ADDABBO - HEINZ SCENARIO                                                    FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR NY-WEST

                                         ANNUAL SALES, SUPPLY AND PRICE OF GAS

                        GAS SALES                                                      AVERAGE GAS PRICE
        --------------------------------------------                        -----------------------------------     DEMAND
                                      INDUSTRIAL                                          COMMERCIAL                WEIGHTED
                                         AND          TOTAL       GAS        ANNUAL          AND                    AVERAGE
YEAR   RESIDENTIAL COMMERCIAL      ALL OTHER      SALES      SUPPLY     SUPPLY     RESIDENTIAL ALL OTHER  INDUSTRIAL    PRICE
----   ----------  ----------     ----------  ----------  ----------   DEFICIT    ----------  ----------  ----------  ----------
                                                                       ----------
       -------------------( BCF )-------------------    (  BCF  )   (  BCF  )    --------------($/MMBTU IN $1981)--------------
1981       133.51       60.70       47.55      241.76        .00         .00        3.84        3.58        3.32        3.67
1982       122.84       57.61       39.12      219.57        .00         .00        4.40        4.14        3.88        4.24
1983       120.19       56.39       37.83      214.41        .00         .00        4.53        4.27        4.01        4.37
1984       121.31       56.03       37.46      214.80        .00         .00        4.47        4.21        3.95        4.31
1985       124.27       56.40       38.03      218.71        .00         .00        4.31        4.05        3.79        4.15
1986       124.57       56.12       39.15      219.84        .00         .00        4.32        4.06        3.80        4.16
1987       122.01       54.79       39.76      216.57        .00         .00        4.55        4.29        4.03        4.39
1988       117.28       52.67       39.73      209.68        .00         .00        4.96        4.70        4.44        4.80
1989       112.91       50.48       39.32      202.72        .00         .00        5.41        5.15        4.89        5.24
1990       110.45       48.78       38.76      198.00        .00         .00        5.74        5.48        5.22        5.57
1991       109.86       47.72       38.42      196.00        .00         .00        5.90        5.64        5.38        5.73
1992       110.85       47.22       38.53      196.60        .00         .00        5.89        5.63        5.37        5.73
1993       112.30       46.92       39.26      198.48        .00         .00        5.84        5.58        5.32        5.68
1994       112.49       46.30       40.10      198.89        .00         .00        5.92        5.66        5.40        5.75
1995       112.01       45.54       40.84      198.40        .00         .00        6.06        5.80        5.54        5.89
1996       110.94       44.57       41.48      196.99        .00         .00        6.29        6.03        5.77        6.12
1997       110.09       43.63       42.16      195.87        .00         .00        6.52        6.26        6.00        6.35
1998       109.33       42.72       42.64      194.68        .00         .00        6.75        6.49        6.23        6.58
1999       108.43       41.74       43.05      193.22        .00         .00        7.02        6.76        6.50        6.85
2000       107.44       40.76       43.46      191.67        .00         .00        7.31        7.05        6.79        7.14


ANNUAL RATES OF GROWTH
---------------------

1981-1985   -1.78%      -1.82%      -5.43%      -2.47%        .00%        .00%       2.93%       3.13%       3.37%       3.12%
1985-1990   -2.33%      -2.86%        .38%      -1.97%        .00%        .00%       5.90%       6.23%       6.61%       6.07%
1990-1995     .28%      -1.36%       1.05%        .04%        .00%        .00%       1.09%       1.14%       1.20%       1.12%
1995-2000    -.83%      -2.19%       1.25%       -.69%        .00%        .00%       3.82%       3.98%       4.15%       3.90%
---------
1981-2000   -1.14%      -2.07%       -.47%      -1.21%        .00%        .00%       3.45%       3.63%       3.84%       3.56%
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#37 -- ADDABBO - HEINZ SCENARIO                                                          FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR NY-WEST

                          1981   1982   1983   1984   1985   1986   1987   1988   1989   1990   1991   1992   1993   1994   1995
                          ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----


SPACE HEATING
SATURATION (%)
  EXISTING HOMES                70.35  68.99  67.99  67.17  66.09  64.66  63.06  61.49  60.06  58.83  57.92  57.08  56.13  55.16
  NEW HOMES                      5.11   4.31   5.17   6.75   7.52   6.90   5.52   4.40   3.91   3.92   4.43   5.13   5.45   5.56
  TOTAL HOUSING STOCK    71.27  69.10  67.75  66.79  66.81  64.90  63.49  61.98  60.32  58.92  57.04  56.96  56.14  55.22  54.27


WATER HEATING
SATURATION (%)
  EXISTING HOMES                64.01  62.65  62.43  62.66  61.92  60.21  57.90  55.81  54.11  52.91  52.34  51.91  51.12  50.19
  NEW HOMES                      4.91   4.20   5.04   6.56   7.29   6.73   5.45   4.39   3.93   3.95   4.45   5.15   5.46   5.58
  TOTAL HOUSING STOCK    66.70  62.00  61.53  61.33  61.59  60.81  59.12  56.92  54.76  53.09  52.03  51.40  51.07  50.30  49.39


COOKING
SATURATION (%)
  EXISTING HOMES                38.19  38.20  39.12  40.13  40.49  40.50  40.08  39.45  39.17  39.20  39.22  39.26  39.06  38.56
  NEW HOMES                     52.35  51.03  52.66  54.75  54.37  53.45  49.13  45.41  43.27  42.71  41.79  40.92  39.21  36.19
  TOTAL HOUSING STOCK    39.30  38.46  38.52  39.37  40.40  40.76  40.85  40.19  39.57  39.25  39.26  39.27  39.29  39.06  38.52


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES                13.25  13.26  13.79  14.45  14.66  14.66  14.34  14.09  14.04  14.20  14.43  14.71  14.84  14.86
  NEW HOMES                     16.24  16.07  17.57  18.34  19.13  19.42  20.36  21.10  21.72  22.10  23.15  24.16  25.11  26.20
  TOTAL HOUSING STODR    13.99  13.31  13.33  13.86  14.52  14.75  14.76  14.46  14.23  14.19  14.34  14.50  14.80  15.03  15.06


RESIDENTIAL
CUSTOMERS               145.13 141.26 140.56 141.69 143.40 143.00 142.96 140.01 138.71 137.34 136.70 136.50 136.62 136.03 134.96

HOUSEHOLDS              249560 251880 254223 256587 258974 261693 264441 267217 270023 272858 275060 277296 279543 281807 284090
(TEN-THOUSANDS)
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837 -- ADDABBO - HEINZ SCENARIO                                                      FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR NY-WEST

                          1996   1997   1998   1999   2000
                          ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----


SPACE HEATING
SATURATION (%)
  EXISTING HOMES         54.14  53.14  52.16  51.18  50.22
  NEW HOMES               5.42   5.32   5.24   5.08   4.89
  TOTAL HOUSING STOCK    53.26  52.28  51.32  50.36  49.40


WATER HEATING
SATURATION (%)
  EXISTING HOMES         49.08  48.01  46.98  45.91  44.85
  NEW HOMES               5.46   5.37   5.31   5.16   4.98
  TOTAL HOUSING STOCK    48.29  47.24  46.23  45.18  44.13


COOKING
SATURATION (%)
  EXISTING HOMES         38.08  37.66  37.18  36.73  36.18
  NEW HOMES              33.72  31.82  29.81  28.12  26.14
  TOTAL HOUSING STOCK    38.08  37.55  37.05  36.57  36.08


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES         14.88  14.95  15.03  15.11  15.16
  NEW HOMES              26.92  27.48  27.98  28.37  28.67
  TOTAL HOUSING STOCK    15.10  15.18  15.26  15.35  15.40


RESIDENTIAL
CUSTOMERS               133.76 132.54 131.36 130.14 128.79

HOUSEHOLDS              286391 288718 291049 293407 295783
(TEN-THOUSANDS)

AVERAGE ANNUAL GROWTH RATE OF RESIDENTIAL CUSTOMERS, 1981-2000:   -.63%
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#37 -- ADDABBO - HEINZ SCENARIO                                                      FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR N. CARO.

                                          ANNUAL SALES, SUPPLY AND PRICE OF GAS

                          GAS SALES                                                     AVERAGE GAS PRICE
           ---------------------------------------------                       -------------------------------       DEMAND
                                      INDUSTRIAL                                           COMMERCIAL                 WEIGHTED
                                         AND         TOTAL        GAS       ANNUAL            AND                     AVERAGE
YEAR   RESIDENTIAL  COMMERCIAL      ALL OTHER      SALES       SUPPLY   SUPPLY DEFICIT RESIDENTIAL ALL OTHER  INDUSTRIAL   PRICE
----   -----------  ----------     ----------   ----------  ---------- ----------   ----------  ----------  ----------  ----------
       -------------------(  BCF )------------------       (  BCF  )  (  BCF  )    -------------($/MMBTU IN $1981)-------------
1981        34.70       25.31          88.07      148.07         .00        .00         5.01        4.66        4.26        4.50
1982        33.77       24.32          78.57      136.66         .00        .00         5.57        5.22        4.82        5.08
1983        34.05       23.96          76.10      134.10         .00        .00         5.70        5.35        4.95        5.21
1984        35.17       23.90          75.16      134.23         .00        .00         5.64        5.29        4.89        5.16
1985        36.82       24.10          75.55      136.47         .00        .00         5.48        5.13        4.73        5.00
1986        37.94       24.00          77.16      139.10         .00        .00         5.49        5.14        4.74        5.01
1987        38.35       23.69          78.31      140.35         .00        .00         5.72        5.37        4.97        5.24
1988        38.27       23.02          78.76      140.05         .00        .00         6.13        5.78        5.38        5.65
1989        38.07       22.29          78.55      138.91         .00        .00         6.58        6.23        5.83        6.10
1990        38.21       21.73          78.14      138.09         .00        .00         6.91        6.56        6.16        6.43
1991        38.71       21.39          77.78      137.88         .00        .00         7.07        6.72        6.32        6.59
1992        39.78       21.28          78.37      139.43         .00        .00         7.06        6.71        6.31        6.59
1993        40.88       21.24          79.83      141.95         .00        .00         7.01        6.66        6.26        6.54
1994        41.90       21.09          81.58      144.57         .00        .00         7.09        6.74        6.34        6.62
1995        42.54       20.89          83.32      146.74         .00        .00         7.23        6.88        6.48        6.75
1996        43.18       20.60          84.92      148.69         .00        .00         7.46        7.11        6.71        6.98
1997        43.62       20.32          86.38      150.32         .00        .00         7.69        7.34        6.94        7.21
1998        44.27       20.04          87.77      152.09         .00        .00         7.92        7.57        7.17        7.44
1999        44.62       19.74          89.01      153.37         .00        .00         8.19        7.84        7.44        7.71
2000        45.10       19.42          90.21      154.73         .00        .00         8.48        8.13        7.73        8.00


ANNUAL RATES OF GROWTH
----------------------

1981-1985   1.49%      -1.21%        -3.76%      -2.02%        .00%       .00%        2.27%       2.43%       2.65%       2.66%
1985-1990    .75%      -2.05%          .68%        .24%        .00%       .00%        4.75%       5.04%       5.43%       5.15%
1990-1995   2.17%       -.79%         1.29%       1.22%        .00%       .00%         .91%        .96%       1.02%        .99%
1995-2000   1.18%      -1.44%         1.60%       1.07%        .00%       .00%        3.24%       3.40%       3.59%       3.44%
---------
1981-2000   1.39%      -1.38%          .13%        .23%        .00%       .00%        2.81%       2.97%       3.19%       3.07%
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#37 -- ADDABBO - HEINZ SCENARIO                                                            FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR N. CARO.

                           1981   1982   1983   1984   1985   1986   1987   1988   1989   1990   1991   1992   1993   1994   1995
                           ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----


SPACE HEATING
SATURATION (%)
  EXISTING HOMES                 16.09  16.21  16.28  16.43  16.62  16.76  16.80  16.75  16.65  16.54  16.48  16.45  16.43  16.40
  NEW HOMES                      20.74  17.33  18.97  21.96  23.28  21.74  18.42  15.42  13.90  13.64  14.61  15.95  16.31  16.20
  TOTAL HOUSING STOCK     16.27  16.24  16.24  16.37  16.61  16.81  16.90  16.85  16.71  16.57  16.46  16.43  16.43  16.42  16.40


WATER HEATING
SATURATION (%)
  EXISTING HOMES                 10.43  10.62  10.88  11.23  11.54  11.69  11.71  11.64  11.58  11.55  11.61  11.71  11.78  11.82
  NEW HOMES                      18.32  15.42  16.93  19.62  20.82  19.48  16.57  13.94  12.61  12.39  13.26  14.47  14.80  14.72
  TOTAL HOUSING STOCK     10.83  10.68  10.78  11.07  11.50  11.80  11.91  11.85  11.71  11.61  11.58  11.66  11.79  11.86  11.89


COOKING
SATURATION (%)
  EXISTING HOMES                  7.07   7.11   7.30   7.50   7.66   7.67   7.68   7.65   7.65   7.64   7.76   7.72   7.87   7.75
  NEW HOMES                       9.60   9.22  10.13  10.79  11.22  10.19   9.83   9.08   8.77   8.39   9.13   8.27   9.31   7.79
  TOTAL HOUSING STOCK      7.14   7.16   7.18   7.40   7.60   7.76   7.74   7.74   7.69   7.68   7.66   7.80   7.73   7.91   7.75


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES                   .79    .81    .87    .92    .96    .97    .97    .98    .99   1.01   1.05   1.07   1.10   1.10
  NEW HOMES                       1.73   1.67   1.79   1.77   1.83   1.68   1.80   1.82   1.88   1.80   1.99   1.64   1.96   1.52
  TOTAL HOUSING STODR       .82    .82    .84    .89    .95    .98    .99   1.00   1.00   1.02   1.03   1.07   1.08   1.13   1.11


RESIDENTIAL
CUSTOMERS                 36.51  37.26  38.18  39.50  41.02  42.26  43.17  43.90  44.47  45.10  45.73  46.66  47.48  48.50  49.16

HOUSEHOLDS               208774 213555 218445 223448 228565 232839 237193 241628 246147 250750 255013 259348 263757 268240 272801
(TEN-THOUSANDS)
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#37 -- ADDABBO - HEINZ SCENARIO                                                      FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR N. CARO.

                          1996   1997   1998   1999   2000
                          ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----


SPACE HEATING
SATURATION (%)
  EXISTING HOMES          16.36  16.30  16.23  16.14  16.03
  NEW HOMES               15.58  15.03  14.55  13.87  13.16
  TOTAL HOUSING STOCK     16.34  16.26  16.18  16.08  15.96


WATER HEATING
SATURATION (%)
  EXISTING HOMES          11.81  11.79  11.77  11.72   1.65
  NEW HOMES               14.18  13.70  13.27  12.68   2.05
  TOTAL HOUSING STOCK     11.87  11.84  11.81  11.74   1.66


COOKING
SATURATION (%)
  EXISTING HOMES           7.83   7.70   7.76   7.61   7.61
  NEW HOMES                8.44   7.23   7.78   6.58   6.84
  TOTAL HOUSING STOCK      7.84   7.69   7.76   7.58   7.59


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES           1.12   1.12   1.14   1.13   1.13
  NEW HOMES                1.81   1.49   1.74   1.42   1.60
  TOTAL HOUSING STODR      1.14   1.13   1.15   1.13   1.15


RESIDENTIAL
CUSTOMERS                 50.82  50.61  51.44  51.96  52.67

HOUSEHOLDS               277438 282155 286951 291829 2%790
(TEN-THOUSANDS)

AVERAGE ANNUAL GROWTH RATE OF RESIDENTIAL CUSTOMERS,1981-2000:    1.95%
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#37 -- ADDABBO - HEINZ SCENARIO                                                          FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR N. DAK.

                                         ANNUAL SALES, SUPPLY AND PRICE OF GAS

                         GAS SALES                                                                AVERAGE GAS PRICE
         -------------------------------------------------                      -------------------------------------      DEMAND
                                       INDUSTRIAL                              ANNUAL                    COMMERCIAL                 WEIGHTED
                                          AND          TOTAL         GAS       SUPPLY                       AND                     AVERAGE
YEAR   RESIDENTIAL  COMMERCIAL    ALL OTHER       SALES       SUPPLY      DEFICIT    RESIDENTIAL   ALL OTHER    INDUSTRIAL      PRICE
----   ----------   ----------   ----------   ----------   ----------   ----------   ----------   ----------   ----------   ----------
       -------------------( BCF )--------------------   (  BCF  )    (  BCF  )    ---------------($/MMBTU IN $1981)----------------
1981        8.96         9.99         1.66        20.61          .00          .00         4.24         3.84         3.60         4.00
1982        8.55         9.53         1.59        19.68          .00          .00         4.80         4.40         4.24         4.56
1983        8.56         9.37         1.56        19.49          .00          .00         4.93         4.53         4.37         4.69
1984        8.82         9.34         1.55        19.70          .00          .00         4.87         4.47         4.31         4.64
1985        9.24         9.42         1.54        20.20          .00          .00         4.71         4.31         4.15         4.48
1986        9.51         9.40         1.56        20.47          .00          .00         4.72         4.32         4.16         4.49
1987        9.55         9.21         1.57        20.33          .00          .00         4.95         4.55         4.39         4.73
1988        9.45         8.89         1.59        19.94          .00          .00         5.36         4.96         4.80         5.14
1989        9.32         8.56         1.60        19.48          .00          .00         5.81         5.41         5.25         5.59
1990        9.32         8.30         1.60        19.23          .00          .00         6.14         5.74         5.58         5.92
1991        9.42         8.15         1.60        19.17          .00          .00         6.30         5.90         5.74         6.08
1992        9.66         8.08         1.60        19.35          .00          .00         6.29         5.89         5.73         6.08
1993        9.96         8.05         1.62        19.62          .00          .00         6.24         5.84         5.68         6.03
1994       10.16         7.96         1.63        19.76          .00          .00         6.32         5.92         5.76         6.11
1995       10.32         7.85         1.65        19.83          .00          .00         6.46         6.06         5.90         6.25
1996       10.43         7.70         1.68        19.81          .00          .00         6.69         6.29         6.13         6.49
1997       10.54         7.56         1.70        19.80          .00          .00         6.92         6.52         6.36         6.72
1998       10.66         7.42         1.72        19.80          .00          .00         7.15         6.75         6.59         6.95
1999       10.75         7.27         1.74        19.76          .00          .00         7.42         7.02         6.86         7.22
2000       10.83         7.12         1.76        19.72          .00          .00         7.71         7.31         7.15         7.52


ANNUAL RATES OF GROWTH
----------------------

1981-1985      .79%       -1.47%       -1.89%        -.50%         .00%         .00%        2.66%        2.93%        3.05%        2.87%
1985-1990      .17%       -2.49%         .81%        -.98%         .00%         .00%        5.45%        5.90%        6.10%        5.73%
1990-1995     2.06%       -1.12%         .64%         .61%         .00%         .00%        1.02%        1.09%        1.12%        1.10%
1995-2000      .97%       -1.93%        1.27%        -.11%         .00%         .00%        3.60%        3.82%        3.92%        3.74%
---------
1981-2000     1.81%       -1.77%         .31%        -.23%         .00%         .00%        3.20%        3.45%        3.56%        3.37%
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#37 -- ADDABBO - HEINZ SCENARIO                                                              FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR N. DAK.

                            1981   1982   1983   1984   1985   1986   1987   1988   1989   1990   1991   1992   1993   1994   1995
                            ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----


SPACE HEATING
SATURATION (%)
  EXISTING HOMES                  39.51  39.65  39.83  40.19  40.52  40.71  40.71  40.56  40.36  40.20  40.14  40.17  40.18  40.18
  NEW HOMES                       47.54  42.34  45.88  51.61  53.85  51.34  45.48  39.63  36.50  36.18  38.53  41.59  42.58  42.63
  TOTAL HOUSING STOCK      40.02  39.73  39.73  40.00  40.50  40.86  40.98  40.83  40.54  40.27  40.11  40.11  40.20  40.24  40.23


WATER HEATING
SATURATION (%)
  EXISTING HOMES                  34.09  34.16  34.68  35.49  35.96  35.95  35.56  35.04  34.65  34.47  34.60  34.84  34.92  34.91
  NEW HOMES                       43.81  39.08  42.55  48.13  50.35  47.99  42.45  37.00  34.12  33.86  36.10  39.02  39.99  40.08
  TOTAL HOUSING STOCK      35.50  34.35  34.30  34.89  35.84  36.32  36.25  35.73  35.09  34.63  34.46  34.63  34.94  35.03  35.03


COOKING
SATURATION (%)
  EXISTING HOMES                  12.34  12.40  12.77  13.33  13.83  13.91  13.98  13.85  13.91  13.92  14.04  14.16  14.19  14.12
  NEW HOMES                       17.78  16.90  18.46  21.44  23.85  21.98  20.98  18.18  17.86  16.94  17.07  17.12  16.65  15.49
  TOTAL HOUSING STOCK      12.49  12.49  12.52  12.92  13.55  14.08  14.11  14.16  13.96  14.01  13.99  14.11  14.22  14.25  14.15


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES                   3.76   3.70   3.80   3.97   4.06   3.99   3.90   3.78   3.73   3.70   3.72   3.74   3.72   3.67
  NEW HOMES                        2.79   2.64   2.79   3.17   3.70   3.42   3.64   3.28   3.47   3.24   3.14   2.97   2.80   2.50
  TOTAL HOUSING STODR       3.92   3.74   3.68   3.77   3.95   4.05   3.97   3.89   3.76   3.73   3.69   3.71   3.73   3.70   3.64


RESIDENTIAL
CUSTOMERS                   8.01   8.06   8.20   8.44   8.75   9.00   9.14   9.24   9.30   9.39   9.48   9.63   9.79   9.93  10.05

HOUSEHOLDS                 23199  23605  24018  24438  24866  25251  25643  26040  26444  26854  27200  27551  27907  28267  28631
(TEN-THOUSANDS)
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037 -- ADDABBO - HEINZ SCENARIO                                          FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR N. DAK.

                          1996   1997   1998   1999   2000
                          ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----


SPACE HEATING
SATURATION (%)
  EXISTING HOMES         40.13  40.06  39.98  39.86  39.72
  NEW HOMES              41.61  40.72  39.94  38.74  37.42
  TOTAL HOUSING STOCK    40.16  40.08  39.98  39.84  39.67


WATER HEATING
SATURATION (%)
  EXISTING HOMES         34.77  34.62  34.47  34.27  34.03
  NEW HOMES              39.15  38.34  37.65  36.55  35.34
  TOTAL HOUSING STOCK    34.87  34.71  34.54  34.32  34.06


COOKING
SATURATION (%)
  EXISTING HOMES         14.03  13.93  13.81  13.65  13.46
  NEW HOMES              14.54  13.64  12.83  11.85  10.90
  TOTAL HOUSING STOCK    14.04  13.92  13.79  13.61  13.40


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES          3.60   3.54   3.47   3.39   3.31
  NEW HOMES               2.34   2.18   2.04   1.88   1.71
  TOTAL HOUSING STOOR     3.58   3.51   3.44   3.36   3.28


RESIDENTIAL
CUSTOMERS                10.15  10.24  10.34  10.42  10.49

HOUSEHOLDS               29001  29375  29754  30137  30526
(TEN-THOUSANDS)

AVERAGE ANNUAL GROWTH RATE OF RESIDENTIAL CUSTOMERS, 1981-2000:   1.43%
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#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

GAS DEMAND MODEL FOR OHIO

ANNUAL SALES, SUPPLY AND PRICE OF GAS

	GAS SALES						AVERAGE GAS PRICE			
YEAR	RESIDENTIAL	COMMERCIAL	INDUSTRIAL AND ALL OTHER	TOTAL SALES	GAS SUPPLY	ANNUAL SUPPLY DEFICIT	RESIDENTIAL	COMMERCIAL AND ALL OTHER	INDUSTRIAL	DEMAND WEIGHTED AVERAGE PRICE
	(BCF)				(BCF)	(BCF)	($/MMBTU IN $1981)			
1981	381.47	162.13	334.05	877.64	.00	.00	3.84	3.58	3.32	3.59
1982	360.59	154.54	274.71	789.84	.00	.00	4.40	4.14	3.88	4.17
1983	361.18	151.89	265.54	778.61	.00	.00	4.53	4.27	4.01	4.30
1984	373.49	151.55	262.97	788.01	.00	.00	4.47	4.21	3.95	4.25
1985	392.72	153.21	267.08	813.00	.00	.00	4.31	4.05	3.79	4.09
1986	402.93	153.01	275.04	830.98	.00	.00	4.32	4.06	3.80	4.10
1987	404.06	149.92	279.32	833.30	.00	.00	4.55	4.29	4.03	4.33
1988	398.12	144.64	278.94	821.70	.00	.00	4.96	4.70	4.44	4.74
1989	392.64	139.08	275.81	807.53	.00	.00	5.41	5.15	4.89	5.19
1990	392.36	134.85	271.51	798.72	.00	.00	5.74	5.48	5.22	5.52
1991	398.07	132.31	268.76	799.14	.00	.00	5.90	5.64	5.38	5.68
1992	410.82	131.37	269.39	811.58	.00	.00	5.89	5.63	5.37	5.68
1993	424.09	130.95	274.27	829.31	.00	.00	5.84	5.58	5.32	5.63
1994	435.90	129.68	280.19	845.77	.00	.00	5.92	5.66	5.40	5.71
1995	442.43	128.00	285.20	855.63	.00	.00	6.06	5.80	5.54	5.85
1996	449.22	125.71	289.68	864.60	.00	.00	6.29	6.03	5.77	6.08
1997	453.66	123.49	294.16	871.31	.00	.00	6.52	6.26	6.00	6.31
1998	461.04	121.39	297.38	879.81	.00	.00	6.75	6.49	6.23	6.54
1999	464.65	119.07	299.94	883.66	.00	.00	7.02	6.76	6.50	6.81
2000	470.26	116.73	302.57	889.57	.00	.00	7.31	7.05	6.79	7.10

ANNUAL RATES OF GROWTH

1981-1985	.73%	-1.40%	-5.44%	-1.89%	.00%	.00%	2.93%	3.13%	3.37%	3.29%
1985-1990	-.02%	-2.52%	.33%	-.35%	.00%	.00%	5.90%	6.23%	6.61%	6.18%
1990-1995	2.43%	-1.04%	.99%	1.39%	.00%	.00%	1.09%	1.14%	1.20%	1.16%
1995-2000	1.23%	-1.83%	1.19%	.78%	.00%	.00%	3.82%	3.98%	4.15%	3.95%
1981-2000	1.11%	-1.71%	-.52%	.07%	.00%	.00%	3.45%	3.63%	3.84%	3.65%

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#37 -- ADDABBO - HEINZ SCENARIO                                                      FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR OHIO

                           1981   1982   1983   1984   1985   1986   1987   1988   1989   1990   1991   1992   1993   1994   1995
                           ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----

SPACE HEATING
SATURATION (%)
  EXISTING HOMES                 70.32  70.40  70.73  71.28  71.62  71.60  71.34  70.99  70.71  70.57  70.64  70.80  70.85  70.85
  NEW HOMES                      78.98  75.15  77.88  81.83  83.29  81.75  77.70  73.01  70.22  70.00  72.29  75.01  75.89  76.01
  TOTAL HOUSING STOCK    71.27  70.55  70.52  70.92  71.56  71.88  71.84  71.49  71.03  70.70  70.56  70.67  70.88  70.95  70.96


WATER HEATING
SATURATION (%)
  EXISTING HOMES                 63.90  63.94  65.01  66.61  67.31  66.95  65.95  64.90  64.27  64.16  64.63  65.27  65.49  65.52
  NEW HOMES                      79.77  76.32  78.95  82.69  84.07  82.69  79.00  74.72  72.20  72.03  74.19  76.72  77.57  77.71
  TOTAL HOUSING STOCK    66.70  64.32  64.26  65.38  67.03  67.69  67.31  66.25  65.12  64.45  64.33  64.82  65.51  65.74  65.77


COOKING
SATURATION (%)
  EXISTING HOMES                 38.38  38.50  39.53  40.85  41.38  41.42  40.83  40.28  39.76  39.68  40.04  39.78  40.33  39.54
  NEW HOMES                      47.27  46.60  49.54  53.23  53.60  52.42  48.33  44.90  41.61  40.79  41.85  39.59  41.90  37.06
  TOTAL HOUSING STOCK    39.38  38.62  38.72  39.79  41.18  41.66  41.67  41.01  40.39  39.81  39.71  40.08  39.78  40.37  39.49


CLOTHES DRYING
SATURATION (X)
  EXISTING HOMES                 13.28  13.71  14.71  15.92  16.59  16.84  16.74  16.66  16.68  16.94  17.47  17.72  18.23  18.07
  NEW HOMES                      32.05  32.07  33.25  34.37  34.05  34.24  33.03  32.44  30.71  30.25  30.52  26.86  29.17  24.06
  TOTAL HOUSING STODR    13.99  13.78  14.20  15.28  16.41  16.99  17.23  17.11  17.02  17.00  17.22  17.74  17.91  18.45  18.19


RESIDENTIAL
CUSTOMERS               258.62 258.56 263.05 270.98 280.52 286.26 289.64 290.72 291.64 293.26 295.97 300.64 304.55 309.36 311.20

HOUSEHOLDS              389880 396469 403169 409983 416911 422415 427990 433640 439364 445164 450016 454921 459880 464892 469960
(TEN-THOUSANDS)
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#37 -- ADDABBO - HEINZ SCENARIO                                            FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR OHIO

                            1996   1997   1998   1999   2000
                            ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----


SPACE HEATING
SATURATION (%)
  EXISTING HOMES           70.77  70.68  70.58  70.45  70.29
  NEW HOMES                75.26  74.60  74.03  73.08  72.00
  TOTAL HOUSING STOCK      70.86  70.76  70.65  70.50  70.33


WATER HEATING
SATURATION (%)
  EXISTING HOMES           65.28  65.06  64.86 · 64.56  64.23
  NEW HOMES                77.06  76.49  76.00  75.16  74.20
  TOTAL HOUSING STOCK      65.53  65.30  65.09  64.78  64.43


COOKING
SATURATION (%)
  EXISTING HOMES           39.74  39.00  39.14  38.30  38.22
  NEW HOMES                38.29  34.37  35.43  31.40  31.71
  TOTAL HOUSING STOCK      39.71  38.90  39.06  38.16  38.09


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES           18.28  18.07  18.26  17.98  18.02
  NEW HOMES                26.24  22.60  24.48  20.76  22.01
  TOTAL HOUSING STODR      18.45  18.17  18.38  18.03  18.10


RESIDENTIAL
CUSTOMERS                 314.59 316.07 319.41 320.56 323.20

HOUSEHOLDS                475082 480261 485496 490787 496137
(TEN-THOUSANDS)

AVERAGE ANNUAL GROWTH RATE OF RESIDENTIAL CUSTOMERS, 1981-2000:   1.18%
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#37 -- ADDABBO - HEINZ SCENARIO

FRI, MAY 13, 1983, 3:37 PM

GAS DEMAND MODEL FOR OKLAHOMA

ANNUAL SALES, SUPPLY AND PRICE OF GAS

	GAS SALES						AVERAGE GAS PRICE			
YEAR	RESIDENTIAL	COMMERCIAL	INDUSTRIAL AND ALL OTHER	TOTAL SALES	GAS SUPPLY	ANNUAL SUPPLY DEFICIT	RESIDENTIAL	COMMERCIAL AND ALL OTHER	INDUSTRIAL	DEMAND WEIGHTED AVERAGE PRICE
	(BCF)				(BCF)	(BCF)	($/MMBTU IN $1981)			
1981	68.76	40.11	197.60	306.47	.00	.00	2.78	2.78	2.71	2.73
1982	64.24	37.75	180.32	282.31	.00	.00	3.34	3.34	3.27	3.30
1983	64.60	37.00	171.32	272.92	.00	.00	3.47	3.47	3.40	3.43
1984	67.42	36.92	166.12	270.46	.00	.00	3.41	3.41	3.34	3.37
1985	71.79	37.41	165.27	274.47	.00	.00	3.25	3.25	3.18	3.21
1986	73.93	37.32	167.34	278.59	.00	.00	3.26	3.26	3.19	3.22
1987	73.67	36.36	167.75	277.78	.00	.00	3.49	3.49	3.42	3.45
1988	71.95	34.79	165.70	272.45	.00	.00	3.90	3.90	3.83	3.86
1989	70.36	33.19	161.87	265.42	.00	.00	4.35	4.35	4.28	4.31
1990	70.01	32.00	157.77	259.78	.00	.00	4.68	4.68	4.61	4.64
1991	70.93	31.29	154.18	256.41	.00	.00	4.84	4.84	4.77	4.80
1992	73.30	31.01	152.31	256.62	.00	.00	4.83	4.83	4.76	4.79
1993	75.72	30.85	152.12	258.69	.00	.00	4.78	4.78	4.71	4.74
1994	77.94	30.46	153.25	261.65	.00	.00	4.86	4.86	4.79	4.82
1995	78.94	29.95	154.05	262.94	.00	.00	5.00	5.00	4.93	4.96
1996	80.00	29.29	155.30	264.59	.00	.00	5.23	5.23	5.16	5.19
1997	80.44	28.64	155.92	265.00	.00	.00	5.46	5.46	5.39	5.42
1998	81.61	28.02	156.73	266.37	.00	.00	5.69	5.69	5.62	5.65
1999	81.87	27.36	157.10	266.34	.00	.00	5.96	5.96	5.89	5.92
2000	82.62	26.68	157.68	266.99	.00	.00	6.25	6.25	6.18	6.21

ANNUAL RATES OF GROWTH

1981-1985	1.08%	-1.72%	-4.37%	-2.72%	.00%	.00%	3.98%	3.98%	4.08%	4.07%
1985-1990	-.50%	-3.08%	-.92%	-1.09%	.00%	.00%	7.57%	7.57%	7.71%	7.65%
1990-1995	2.43%	-1.31%	-.48%	.24%	.00%	.00%	1.33%	1.33%	1.35%	1.35%
1995-2000	.92%	-2.28%	.47%	.31%	.00%	.00%	4.56%	4.56%	4.62%	4.60%
1981-2000	.97%	-2.12%	-1.18%	-.72%	.00%	.00%	4.36%	4.36%	4.43%	4.41%

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#37 -- ADDABBO - HEINZ SCENARIO                                                FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR OKLAHOMA

                             1981   1982   1983   1984   1985   1986   1987   1988   1989   1990   1991   1992   1993   1994   1995
                             ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----


SPACE HEATING
SATURATION (%)
  EXISTING HOMES                   68.95  69.25  69.82  70.66  71.21  71.23  70.93  70.50  70.11  69.85  69.81  69.88  69.83  69.71
  NEW HOMES                        84.56  80.34  82.33  85.76  86.67  84.23  78.56  71.70  67.08  65.82  67.87  70.59  70.89  70.16
  TOTAL HOUSING STOCK       70.14  69.48  69.62  70.24  71.17  71.63  71.59  71.14  70.53  70.03  69.75  69.76  69.90  69.86  69.72


WATER HEATING
SATURATION (%)
  EXISTING HOMES                   64.66  64.49  65.56  67.33  68.00  67.28  65.78  64.22  63.13  62.61  62.78  63.17  63.08  62.77
  NEW HOMES                        79.91  75.12  77.49  81.55  82.66  79.81  73.37  65.94  61.13  59.86  62.02  64.90  65.25  64.51
  TOTAL HOUSING STOCK       68.18  65.18  64.85  65.96  67.81  68.40  67.62  65.99  64.27  63.07  62.54  62.76  63.22  63.13  62.81


COOKING
SATURATION (%)
  EXISTING HOMES                   44.23  44.27  45.29  46.73  47.37  46.92  46.01  45.08  44.39  44.14  44.37  43.73  44.42  43.31
  NEW HOMES                        46.53  46.75  49.92  53.98  55.23  52.57  48.34  44.39  41.62  40.98  41.80  38.40  41.75  36.40
  TOTAL HOUSING STOCK       45.40  44.31  44.35  45.45  46.97  47.59  47.08  46.07  45.06  44.31  44.06  44.31  43.60  44.35  43.14


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES                    9.28   9.72  10.60  11.68  12.40  12.56  12.53  12.52  12.65  12.98  13.52  13.77  14.32  14.27
  NEW HOMES                        24.06  25.37  26.72  27.86  28.49  28.20  28.11  28.16  27.89  28.01  28.30  24.37  27.57  23.18
  TOTAL HOUSING STODR        9.84   9.78  10.25  11.14  12.23  12.84  12.99  12.96  12.94  13.06  13.36  13.88  14.03  14.65  14.50


RESIDENTIAL
CUSTOMERS                   77.99  78.31  80.26  83.40  87.22  89.49  90.59  90.97  91.22  91.82  92.79  94.43  95.73  97.58  98.20

HOUSEHOLDS                 114664 117496 120398 123372 126419 128670 130960 133291 135664 138079 140177 142308 144471 146667 148896
(TEN-THOUSANDS)
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#37 -- ADDABBO - HEINZ SCENARIO                                                          FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR OKLAHOMA

                          1996   1997   1998   1999   2000
                          ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----


SPACE HEATING
SATURATION (%)
  EXISTING HOMES         69.47  69.20  68.90  68.53  68.11
  NEW HOMES              68.17  66.29  64.52  62.22  59.74
  TOTAL HOUSING STOCK    69.44  69.13  68.79  68.37  67.90


WATER HEATING
SATURATION (%)
  EXISTING HOMES         62.14  61.52  60.91  60.19  59.41
  NEW HOMES              62.45  60.53  58.74  56.43  53.98
  TOTAL HOUSING STOCK    62.15  61.50  60.86  60.09  59.28


COOKING
SATURATION (%)
  EXISTING HOMES         43.48  42.30  42.45  41.23  41.09
  NEW HOMES              38.14  32.99  34.82  29.95  30.75
  TOTAL HOUSING STOCK    43.35  42.07  42.26  40.95  40.83


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES         14.55  14.41  14.68  14.51  14.65
  NEW HOMES              26.05  22.15  25.05  21.30  23.45
  TOTAL HOUSING STODR    14.83  14.60  14.94  14.67  14.87


RESIDENTIAL
CUSTOMERS                99.43  99.79 101.01 101.23 102.12

HOUSEHOLDS              151160 153457 155790 158158 160562
(TEN-THOUSANDS)

AVERAGE ANNUAL GROWTH RATE OF RESIDENTIAL CUSTOMERS, 1981-2000:   1.43%
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#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

GAS DEMAND MODEL FOR OREGON

ANNUAL SALES, SUPPLY AND PRICE OF GAS

	GAS SALES						AVERAGE GAS PRICE			
YEAR	RESIDENTIAL	COMMERCIAL	INDUSTRIAL AND ALL OTHER	TOTAL SALES	GAS SUPPLY	ANNUAL SUPPLY DEFICIT	RESIDENTIAL	COMMERCIAL AND ALL OTHER	INDUSTRIAL	DEMAND WEIGHTED AVERAGE PRICE
	(BCF)				(BCF)	(BCF)	($/MMBTU IN $1981)			
1981	17.06	14.89	39.40	71.35	.00	.00	5.70	5.19	4.66	5.04
1982	16.50	14.37	35.06	65.93	.00	.00	6.34	5.75	5.22	5.62
1983	16.43	14.17	33.60	64.20	.00	.00	6.47	5.88	5.35	5.75
1984	16.65	14.13	33.04	63.81	.00	.00	6.41	5.82	5.29	5.70
1985	17.01	14.23	33.14	64.38	.00	.00	6.25	5.66	5.13	5.54
1986	17.11	14.21	33.79	65.11	.00	.00	6.26	5.67	5.14	5.55
1987	16.97	14.00	34.17	65.14	.00	.00	6.49	5.90	5.37	5.78
1988	16.66	13.63	34.21	64.50	.00	.00	6.90	6.31	5.70	6.10
1989	16.32	13.23	33.97	63.51	.00	.00	7.35	6.76	6.23	6.63
1990	16.10	12.91	33.64	62.65	.00	.00	7.68	7.09	6.56	6.96
1991	16.01	12.72	33.43	62.16	.00	.00	7.84	7.25	6.72	7.12
1992	16.10	12.66	33.71	62.47	.00	.00	7.83	7.24	6.71	7.11
1993	16.24	12.64	34.54	63.42	.00	.00	7.78	7.19	6.66	7.05
1994	16.27	12.55	35.40	64.22	.00	.00	7.86	7.27	6.74	7.13
1995	16.26	12.44	36.37	65.07	.00	.00	8.00	7.41	6.88	7.26
1996	16.17	12.28	37.19	65.65	.00	.00	8.23	7.64	7.11	7.49
1997	16.10	12.13	38.01	66.24	.00	.00	8.46	7.87	7.34	7.71
1998	16.03	11.98	38.80	66.81	.00	.00	8.69	8.10	7.57	7.93
1999	15.93	11.82	39.49	67.24	.00	.00	8.96	8.37	7.84	8.20
2000	15.83	11.64	40.10	67.57	.00	.00	9.25	8.66	8.13	8.40

ANNUAL RATES OF GROWTH

1981-1985	-.08%	-1.13%	-4.23%	-2.54%	.00%	.00%	1.97%	2.19%	2.43%	2.42%
1985-1990	-1.09%	-1.92%	.30%	-.54%	.00%	.00%	4.21%	4.61%	5.04%	4.65%
1990-1995	.19%	-.74%	1.57%	.76%	.00%	.00%	.82%	.89%	.96%	.86%
1995-2000	-.53%	-1.32%	1.97%	.76%	.00%	.00%	2.95%	3.17%	3.40%	3.16%
1981-2000	-.40%	-1.29%	.09%	-.29%	.00%	.00%	2.51%	2.73%	2.97%	2.70%

#37 -- ADDABBO - HEINZ SCENARIO

FRI, MAY 13, 1983, 3:37 PM

GAS DEMAND MODEL FOR OREGON

	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
SPACE HEATING SATURATION (%)															
EXISTING HOMES		23.36	22.75	22.15	21.62	21.09	20.61	20.07	19.48	18.91	18.37	17.94	17.55	17.15	16.75
NEW HOMES		10.69	8.35	8.68	9.57	9.84	8.87	7.25	5.86	5.10	4.90	5.14	5.50	5.51	5.36
TOTAL HOUSING STOCK	23.62	22.81	22.12	21.56	21.09	20.68	20.18	19.60	18.99	18.40	17.94	17.53	17.16	16.77	16.38
WATER HEATING SATURATION (%)															
EXISTING HOMES		12.22	11.95	11.77	11.65	11.48	11.22	10.88	10.50	10.16	9.88	9.70	9.55	9.36	9.15
NEW HOMES		8.33	6.56	6.83	7.53	7.74	6.99	5.74	4.67	4.08	3.92	4.11	4.39	4.40	4.28
TOTAL HOUSING STOCK	12.68	12.05	11.71	11.55	11.47	11.34	11.07	10.69	10.29	9.94	9.69	9.52	9.38	9.20	9.00
COOKING SATURATION (%)															
EXISTING HOMES		4.96	4.80	4.77	4.74	4.67	4.57	4.51	4.39	4.28	4.22	4.24	4.26	4.27	4.26
NEW HOMES		2.71	2.47	2.72	2.95	2.97	2.81	2.94	2.67	2.46	2.50	2.85	3.20	3.45	3.57
TOTAL HOUSING STOCK	5.07	4.86	4.70	4.68	4.66	4.61	4.51	4.46	4.33	4.21	4.16	4.19	4.23	4.24	4.24
CLOTHES DRYING SATURATION (%)															
EXISTING HOMES		1.11	1.06	1.05	1.04	1.01	.98	.95	.91	.87	.86	.86	.87	.87	.87
NEW HOMES		.35	.32	.36	.38	.38	.37	.47	.47	.45	.48	.58	.68	.77	.84
TOTAL HOUSING STODR	1.17	1.08	1.03	1.02	1.01	.99	.95	.93	.89	.86	.84	.85	.86	.87	.87
RESIDENTIAL CUSTOMERS	25.42	25.76	26.23	26.87	27.58	28.10	28.52	28.89	29.21	29.55	29.88	30.30	30.77	31.20	31.61
HOUSEHOLDS (TEN-THOUSANDS)	102598	106220	109970	113852	117870	121135	124491	127939	131483	135125	138193	141330	144538	147819	151174

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#37 -- ADDABBO - HEINZ SCENARIO                                                       FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR OREGON

                          1996   1997   1998   1999   2000
                          ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----


SPACE HEATING
SATURATION (%)
  EXISTING HOMES         16.34  15.94  15.54  15.15  14.76
  NEW HOMES               5.05   4.77   4.51   4.21   3.91
  TOTAL HOUSING STOCK    15.98  15.58  15.19  14.80  14.41


WATER HEATING
SATURATION (%)
  EXISTING HOMES          8.92   8.70   8.48   8.25   8.02
  NEW HOMES               4.04   3.82   3.62   3.39   3.15
  TOTAL HOUSING STOCK     8.77   8.54   8.32   8.10   7.87


COOKING
SATURATION (%)
  EXISTING HOMES          4.24   4.21   4.18   4.13   4.06
  NEW HOMES               3.60   3.59   3.56   3.34   3.11
  TOTAL HOUSING STOCK     4.22   4.19   4.16   4.10   4.03


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES           .86    .86    .86    .85    .84
  NEW HOMES                .90    .95    .99    .95    .91
  TOTAL HOUSING STODR      .87    .86    .86    .85    .84


RESIDENTIAL
CUSTOMERS                32.00  32.40  32.80  33.17  33.54

HOUSEHOLDS              154606 158116 161705 165376 169130
(TEN-THOUSANDS)

AVERAGE ANNUAL GROWTH RATE OF RESIDENTIAL CUSTOMERS, 1981-2000:   1.47%
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#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

GAS DEMAND MODEL FOR PA-EAST

ANNUAL SALES, SUPPLY AND PRICE OF GAS

	GAS SALES						AVERAGE GAS PRICE			
YEAR	RESIDENTIAL	COMMERCIAL	INDUSTRIAL AND ALL OTHER	TOTAL SALES	GAS SUPPLY	ANNUAL SUPPLY DEFICIT	RESIDENTIAL	COMMERCIAL AND ALL OTHER	INDUSTRIAL	DEMAND WEIGHTED AVERAGE PRICE
	(BCF)				(BCF)	(BCF)	($/MMBTU IN $1981)			
1981	145.03	64.49	150.04	359.56	.00	.00	4.34	4.11	3.52	3.96
1982	137.22	61.57	123.43	322.23	.00	.00	4.90	4.67	4.08	4.54
1983	136.06	60.39	119.60	316.05	.00	.00	5.03	4.80	4.21	4.68
1984	138.43	60.03	118.65	317.11	.00	.00	4.97	4.74	4.15	4.62
1985	142.93	60.37	120.62	323.92	.00	.00	4.81	4.58	3.99	4.46
1986	145.16	60.10	124.32	329.59	.00	.00	4.82	4.59	4.00	4.47
1987	144.70	58.84	126.41	329.94	.00	.00	5.05	4.82	4.23	4.69
1988	142.25	56.79	126.48	325.52	.00	.00	5.46	5.23	4.64	5.10
1989	139.96	54.65	125.35	319.96	.00	.00	5.91	5.68	5.09	5.55
1990	139.41	52.97	123.72	316.10	.00	.00	6.24	6.01	5.42	5.88
1991	140.74	51.91	122.78	315.43	.00	.00	6.40	6.17	5.58	6.04
1992	143.95	51.42	123.31	318.68	.00	.00	6.39	6.16	5.57	6.04
1993	147.67	51.13	125.81	324.61	.00	.00	6.34	6.11	5.52	5.99
1994	150.17	50.53	128.65	329.35	.00	.00	6.42	6.19	5.60	6.06
1995	151.92	49.79	131.16	332.88	.00	.00	6.56	6.33	5.74	6.20
1996	153.04	48.84	133.34	335.22	.00	.00	6.79	6.56	5.97	6.43
1997	154.25	47.91	135.63	337.80	.00	.00	7.02	6.79	6.20	6.66
1998	155.54	47.01	137.27	339.82	.00	.00	7.25	7.02	6.43	6.89
1999	156.48	46.04	138.69	341.22	.00	.00	7.52	7.29	6.70	7.16
2000	157.31	45.06	140.08	342.45	.00	.00	7.81	7.58	6.99	7.44

ANNUAL RATES OF GROWTH

1981-1985	-.36%	-1.64%	-5.31%	-2.58%	.00%	.00%	2.60%	2.74%	3.18%	3.05%
1985-1990	-.50%	-2.58%	.51%	-.49%	.00%	.00%	5.34%	5.58%	6.32%	5.68%
1990-1995	1.73%	-1.23%	1.17%	1.04%	.00%	.00%	1.01%	1.04%	1.15%	1.07%
1995-2000	.70%	-1.98%	1.32%	.57%	.00%	.00%	3.55%	3.67%	4.02%	3.72%
1981-2000	.43%	-1.87%	-.36%	-.26%	.00%	.00%	3.14%	3.27%	3.68%	3.38%

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#37 -- ADDABBO - HEINZ SCENARIO                                                           FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR PA-EAST

                           1981   1982   1983   1984   1985   1986   1987   1988   1989   1990   1991   1992   1993   1994   1995
                           ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----


SPACE HEATING
SATURATION (%)
  EXISTING HOMES                 21.63  21.23  20.91  20.65  20.35  20.02  19.62  19.22  18.85  18.53  18.26  18.02  17.76  17.49
  NEW HOMES                       5.02   4.11   4.70   5.82   6.36   5.84   4.73   3.80   3.37   3.32   3.65   4.10   4.26   4.26
  TOTAL HOUSING STOCK     21.89  21.26  20.85  20.55  20.32  20.08  19.74  19.34  18.92  18.55  18.24  17.99  17.76  17.51  17.24


WATER HEATING
SATURATION (%)
  EXISTING HOMES                 27.85  27.25  27.08  27.09  26.77  26.17  25.34  24.51  23.87  23.40  23.15  22.96  22.63  22.24
  NEW HOMES                       5.28   4.37   4.98   6.12   6.66   6.13   5.00   4.05   3.61   3.55   3.88   4.34   4.48   4.48
  TOTAL HOUSING STOCK     28.96  27.35  26.74  26.59  26.62  26.39  25.78  24.95  24.12  23.48  23.03  22.79  22.61  22.29  21.91


COOKING
SATURATION (%)
  EXISTING HOMES                 28.70  28.77  29.38  30.26  30.79  30.82  30.42  29.99  29.71  29.66  29.79  29.88  29.80  29.48
  NEW HOMES                      38.80  37.00  38.10  40.48  41.12  39.41  35.35  31.69  29.30  28.40  28.34  27.99  26.99  24.82
  TOTAL HOUSING STOCK     29.47  28.92  28.95  29.58  30.49  30.98  30.98  30.52  30.02  29.70  29.63  29.76  29.85  29.75  29.39


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES                  3.53   3.90   4.41   5.00   5.45   5.72   5.86   6.01   6.22   6.49   6.84   7.17   7.42   7.58
  NEW HOMES                      20.94  21.04  21.19  21.14  21.06  21.04  21.06  20.95  20.74  20.42  20.05  19.55  18.97  18.00
  TOTAL HOUSING STODR      3.71   3.92   4.28   4.78   5.35   5.75   6.01   6.16   6.30   6.49   6.75   7.08   7.40   7.64   7.77


RESIDENTIAL
CUSTOMERS                110.16 109.80 110.57 112.20 114.24 115.44 115.94 115.84 115.71 115.85 116.33 117.15 117.99 118.57 118.85

HOUSEHOLDS               213688 216359 219064 221802 224575 226686 228817 230967 233138 235330 237424 239537 241669 243820 245990
(TEN-THOUSANDS)
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#37 -- ADDABBO - HEINZ SCENARIO                                                    FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR PA-EAST

                            1996   1997   1998   1999   2000
                            ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----


SPACE HEATING
SATURATION (%)
  EXISTING HOMES           17.20  16.92  16.64  16.36  16.08
  NEW HOMES                 4.09   3.95   3.83   3.64   3.46
  TOTAL HOUSING STOCK      16.95  16.67  16.40  16.12  15.84


WATER HEATING
SATURATION (%)
  EXISTING HOMES           21.78  21.33  20.89  20.44  19.99
  NEW HOMES                 4.30   4.15   4.02   3.83   3.63
  TOTAL HOUSING STOCK      21.45  21.01  20.58  20.13  19.68


COOKING
SATURATION (%)
  EXISTING HOMES           29.21  28.92  28.62  28.24  27.83
  NEW HOMES                23.37  22.00  20.70  19.22  17.75
  TOTAL HOUSING STOCK      29.10  28.79  28.47  28.08  27.65


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES            7.72   7.84   7.96   8.03   8.07
  NEW HOMES                17.28  16.52  15.71  14.80  13.85
  TOTAL HOUSING STODR       7.90   8.01   8.10   8.15   8.18


RESIDENTIAL
CUSTOMERS                 119.11 119.38 119.64 119.80 119.93

HOUSEHOLDS                248179 250388 252617 254865 257133
(TEN-THOUSANDS)

AVERAGE ANNUAL GROWTH RATE OF RESIDENTIAL CUSTOMERS, 1981-2000:     .45%
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#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

GAS DEMAND MODEL FOR PA-WEST

ANNUAL SALES, SUPPLY AND PRICE OF GAS

	GAS SALES						AVERAGE GAS PRICE			
YEAR	RESIDENTIAL	COMMERCIAL	INDUSTRIAL AND ALL OTHER	TOTAL SALES	GAS SUPPLY	ANNUAL SUPPLY DEFICIT	RESIDENTIAL	COMMERCIAL AND ALL OTHER	INDUSTRIAL	DEMAND WEIGHTED AVERAGE PRICE
	(BCF)				(BCF)	(BCF)	($/MMBTU IN $1981)			
1981	145.03	64.49	150.04	359.56	.00	.00	3.84	3.58	3.32	3.58
1982	133.27	61.22	123.44	317.93	.00	.00	4.40	4.14	3.88	4.15
1983	130.49	59.92	119.36	309.78	.00	.00	4.53	4.27	4.01	4.28
1984	132.05	59.53	118.22	309.80	.00	.00	4.47	4.21	3.95	4.22
1985	135.92	59.91	120.07	315.90	.00	.00	4.31	4.05	3.79	4.06
1986	136.69	59.59	123.70	319.98	.00	.00	4.32	4.06	3.80	4.07
1987	133.85	58.16	125.69	317.70	.00	.00	4.55	4.29	4.03	4.30
1988	128.70	55.87	125.64	310.21	.00	.00	4.96	4.70	4.44	4.70
1989	123.99	53.51	124.36	301.86	.00	.00	5.41	5.15	4.89	5.15
1990	121.49	51.67	122.60	295.76	.00	.00	5.74	5.48	5.22	5.48
1991	121.23	50.51	121.51	293.25	.00	.00	5.90	5.64	5.38	5.64
1992	123.06	49.95	121.92	294.92	.00	.00	5.89	5.63	5.37	5.63
1993	125.36	49.59	124.28	299.23	.00	.00	5.84	5.58	5.32	5.58
1994	126.15	48.90	127.03	302.07	.00	.00	5.92	5.66	5.40	5.66
1995	126.08	48.06	129.47	303.61	.00	.00	6.06	5.80	5.54	5.80
1996	125.37	46.99	131.58	303.95	.00	.00	6.29	6.03	5.77	6.02
1997	124.82	45.96	133.80	304.59	.00	.00	6.52	6.26	6.00	6.25
1998	124.41	44.96	135.39	304.76	.00	.00	6.75	6.49	6.23	6.48
1999	123.69	43.90	136.76	304.35	.00	.00	7.02	6.76	6.50	6.75
2000	122.91	42.83	138.12	303.86	.00	.00	7.31	7.05	6.79	7.04

ANNUAL RATES OF GROWTH

1981-1985	-1.61%	-1.83%	-5.42%	-3.18%	.00%	.00%	2.93%	3.13%	3.37%	3.24%
1985-1990	-2.22%	-2.91%	.42%	-1.31%	.00%	.00%	5.90%	6.23%	6.61%	6.16%
1990-1995	.75%	-1.44%	1.10%	.53%	.00%	.00%	1.09%	1.14%	1.20%	1.14%
1995-2000	-.51%	-2.28%	1.30%	.02%	.00%	.00%	3.82%	3.98%	4.15%	3.95%
1981-2000	-.87%	-2.13%	-.43%	-.88%	.00%	.00%	3.45%	3.63%	3.84%	3.63%

#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

GAS DEMAND MODEL FOR PA-WEST

	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
SPACE HEATING SATURATION (%)															
EXISTING HOMES		70.34	68.87	67.75	66.82	65.69	64.46	63.05	61.62	60.34	59.23	58.34	57.52	56.61	55.68
NEW HOMES		10.03	8.40	9.85	12.50	13.89	12.88	10.50	8.50	7.63	7.63	8.54	9.79	10.32	10.48
TOTAL HOUSING STOCK	71.27	69.00	67.53	66.46	65.62	64.70	63.47	62.04	60.60	59.33	58.27	57.41	56.63	55.74	54.83
WATER HEATING SATURATION (%)															
EXISTING HOMES		63.97	62.50	62.13	62.23	61.49	60.01	57.99	55.99	54.45	53.37	52.82	52.42	51.67	50.79
NEW HOMES		10.65	9.06	10.60	13.38	14.82	13.84	11.43	9.37	8.48	8.50	9.48	10.82	11.40	11.60
TOTAL HOUSING STOCK	66.70	62.78	61.31	60.98	61.15	60.60	59.12	57.09	55.10	53.56	52.53	52.01	51.64	50.92	50.06
COOKING SATURATION (%)															
EXISTING HOMES		38.23	38.22	39.00	40.17	40.81	40.77	40.16	39.53	39.14	39.09	39.32	39.50	39.45	39.08
NEW HOMES		48.31	46.80	48.54	51.71	52.86	51.36	47.17	43.27	40.79	40.11	40.50	40.56	39.76	37.45
TOTAL HOUSING STOCK	39.38	38.46	38.41	39.21	40.43	41.05	40.97	40.29	39.60	39.17	39.11	39.34	39.52	39.46	39.05
CLOTHES DRYING SATURATION (%)															
EXISTING HOMES		13.25	13.49	14.26	15.28	15.88	16.01	15.84	15.72	15.80	16.12	16.65	17.20	17.57	17.75
NEW HOMES		27.44	28.17	28.91	29.36	29.79	30.42	31.45	32.35	33.16	33.66	34.18	34.83	35.42	36.08
TOTAL HOUSING STODR	13.99	13.57	13.81	14.59	15.59	16.15	16.28	16.14	16.04	16.13	16.44	16.98	17.53	17.90	18.10
RESIDENTIAL CUSTOMERS	110.16	106.94	106.31	107.32	109.16	109.69	108.84	106.94	104.99	103.66	103.04	103.16	103.39	103.08	102.32
HOUSEHOLDS (TEN-THOUSANDS)	213688	216359	219064	221802	224575	226686	228817	230967	233138	235330	237424	239537	241669	243820	245990

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#37 -- ADDABBO - HEINZ SCENARIO                                                    FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR PA-WEST

                          1996   1997   1998   1999   2000
                          ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----


SPACE HEATING
SATURATION (%)
  EXISTING HOMES         54.69  53.73  52.79  51.04  50.90
  NEW HOMES              10.21   9.99   9.82   9.49   9.12
  TOTAL HOUSING STOCK    53.86  52.91  51.98  51.05  50.12


WATER HEATING
SATURATION (%)
  EXISTING HOMES         49.73  48.70  47.71  46.69  45.66
  NEW HOMES              11.33  11.11  10.96  10.62  10.25
  TOTAL HOUSING STOCK    49.01  48.00  47.03  46.01  45.00


COOKING
SATURATION (%)
  EXISTING HOMES         38.78  38.46  38.13  37.71  37.24
  NEW HOMES              35.92  34.45  33.03  31.30  29.51
  TOTAL HOUSING STOCK    38.72  38.39  38.04  37.59  37.10


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES         17.95  18.16  18.30  18.55  18.70
  NEW HOMES              36.50  36.87  37.20  37.44  37.59
  TOTAL HOUSING STODR    18.30  18.51  18.73  18.90  19.05


RESIDENTIAL
CUSTOMERS               101.44 100.50  99.72  98.71  97.64

HOUSEHOLDS              248179 250388 252617 254865 257133
(TEN-THOUSANDS)

AVERAGE ANNUAL GROWTH RATE OF RESIDENTIAL CUSTOMERS, 1981-2000:   -.63%
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#37 -- ADDABBO - HEINZ SCENARIO                                                                      FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR RH. ISL.

                                                  ANNUAL SALES, SUPPLY AND PRICE OF GAS

                          GAS SALES                                                                    AVERAGE GAS PRICE
            -----------------------------------------------                               ----------------------------------     DEMAND
                                            INDUSTRIAL                              ANNUAL                    COMMERCIAL                       WEIGHTED
                                               AND         TOTAL        GAS         SUPPLY                       AND                           AVERAGE
   YEAR    RESIDENTIAL  COMMERCIAL        ALL OTHER       SALES       SUPPLY      DEFICIT    RESIDENTIAL   ALL OTHER    INDUSTRIAL       PRICE
   ----    ----------   ----------       ----------   ----------   ----------   ----------   ----------   ----------   ----------   ----------
            -------------------( BCF )--------------------------    ( BCF )      ( BCF )      ---------------( $/MMBTU IN $1981 )--------------
   1981       14.45        6.83            5.15         26.43          .00          .00         6.15         5.79         4.95         5.82
   1982       13.92        6.63            4.74         25.29          .00          .00         6.71         6.35         5.51         6.39
   1983       13.95        6.56            4.65         25.16          .00          .00         6.84         6.48         5.64         6.52
   1984       14.32        6.57            4.61         25.49          .00          .00         6.78         6.42         5.58         6.47
   1985       14.94        6.63            4.61         26.18          .00          .00         6.62         6.26         5.42         6.32
   1986       15.36        6.66            4.66         26.69          .00          .00         6.63         6.27         5.43         6.33
   1987       15.67        6.60            4.73         27.00          .00          .00         6.86         6.50         5.66         6.56
   1988       15.67        6.48            4.79         26.93          .00          .00         7.27         6.91         6.07         6.97
   1989       15.66        6.33            4.83         26.82          .00          .00         7.72         7.36         6.52         7.42
   1990       15.81        6.22            4.86         26.89          .00          .00         8.05         7.69         6.85         7.75
   1991       16.11        6.16            4.87         27.14          .00          .00         8.21         7.85         7.01         7.91
   1992       16.57        6.16            4.91         27.64          .00          .00         8.20         7.84         7.00         7.91
   1993       17.10        6.18            4.97         28.25          .00          .00         8.15         7.79         6.95         7.86
   1994       17.52        6.17            5.05         28.74          .00          .00         8.23         7.87         7.03         7.94
   1995       17.87        6.15            5.13         29.15          .00          .00         8.37         8.01         7.17         8.08
   1996       18.16        6.11            5.20         29.48          .00          .00         8.60         8.24         7.40         8.31
   1997       18.46        6.07            5.28         29.81          .00          .00         8.83         8.47         7.63         8.54
   1998       18.79        6.03            5.35         30.17          .00          .00         9.06         8.70         7.86         8.78
   1999       19.06        5.99            5.42         30.47          .00          .00         9.33         8.97         8.13         9.05
   2000       19.33        5.94            5.49         30.75          .00          .00         9.62         9.26         8.42         9.34


ANNUAL RATES OF GROWTH
----------------------

1981-1985      .83%       -.73%          -2.74%         -.24%          .00%         .00%        1.86%        1.97%        2.29%        2.06%
1985-1990     1.14%      -1.27%           1.07%          .54%          .00%         .00%        3.99%        4.20%        4.79%        4.17%
1990-1995     2.48%       -.22%           1.09%         1.63%          .00%         .00%         .78%         .82%         .92%         .84%
1995-2000     1.58%       -.71%           1.38%         1.07%          .00%         .00%        2.82%        2.94%        3.27%        2.92%
---------
1981-2000     1.54%       -.74%            .34%          .80%          .00%         .00%        2.38%        2.50%        2.84%        2.52%
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#37 -- ADDABBO - HEINZ SCENARIO                                                    FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR RH. ISL.

                          1981   1982   1983   1984   1985   1986   1987   1988   1989   1990   1991   1992   1993   1994   1995
                          ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----

SPACE HEATING
SATURATION (%)
  EXISTING HOMES                31.95  32.09  32.23  32.48  32.73  32.94  33.02  32.97  32.87  32.78  32.76  32.80  32.84  32.87
  NEW HOMES                     38.76  34.45  37.27  41.65  43.24  41.49  37.39  33.28  31.01  30.84  32.56  34.80  35.56  35.65
  TOTAL HOUSING STOCK    32.26  32.12  32.15  32.36  32.71  33.02  33.17  33.14  32.98  32.82  32.73  32.76  32.84  32.90  32.93


WATER HEATING
SATURATION (%)
  EXISTING HOMES                36.14  36.09  36.42  36.96  37.18  37.08  36.67  36.15  35.73  35.50  35.51  35.62  35.60  35.51
  NEW HOMES                     38.42  34.40  37.19  41.45  42.97  41.28  37.32  33.35  31.16  30.97  32.62  34.75  35.47  35.54
  TOTAL HOUSING STOCK    37.32  36.20  36.05  36.44  37.08  37.34  37.19  36.69  36.08  35.61  35.39  35.44  35.60  35.60  35.52


COOKING
SATURATION (%)
  EXISTING HOMES                40.94  40.64  40.87  41.64  41.43  41.63  40.67  39.70  38.98  38.56  38.20  37.81  37.28  36.54
  NEW HOMES                     30.71  30.13  31.04  33.98  33.22  34.03  31.06  27.80  25.97  25.36  24.55  23.64  22.39  20.47
  TOTAL HOUSING STOCK    41.65  40.68  40.37  40.62  41.45  41.21  41.44  40.40  39.37  38.62  38.25  37.88  37.47  36.92  36.16


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES                 6.04   6.37   6.86   7.45   7.77   8.10   8.20   8.24   8.32   8.48   8.62   8.74   8.77   8.70
  NEW HOMES                     19.35  18.73  18.11  18.75  17.47  18.98  17.03  15.42  14.39  13.79  12.51  11.10   9.88   8.41
  TOTAL HOUSING STODR     6.28   6.38   6.69   7.15   7.74   8.03   8.40   8.44   8.44   8.49   8.60   8.72   8.80   8.79   8.69


RESIDENTIAL
CUSTOMERS                16.18  16.20  16.42  16.78  17.28  17.63  17.99  18.12  18.22  18.37  18.54  18.75  18.98  19.17  19.31

HOUSEHOLDS               34442  34994  35553  36122  36700  37364  38041  38729  39430  40144  40706  41276  41854  42440  43034
(TEN-THOUSANDS)
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#37 -- ADDABBO - HEINZ SCENARIO                                                FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR RH. ISL.

                          1996   1997   1998   1999   2000
                          ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----


SPACE HEATING
SATURATION (%)
  EXISTING HOMES         32.87  32.86  32.83  32.79  32.72
  NEW HOMES              35.01  34.44  33.94  33.11  32.17
  TOTAL HOUSING STOCK    32.92  32.89  32.86  32.79  32.70


WATER HEATING
SATURATION (%)
  EXISTING HOMES         35.32  35.13  34.93  34.69  34.42
  NEW HOMES              34.90  34.33  33.82  33.00  32.07
  TOTAL HOUSING STOCK    35.31  35.11  34.90  34.65  34.37


COOKING
SATURATION (%)
  EXISTING HOMES         35.84  35.15  34.56  33.83  33.13
  NEW HOMES              19.02  17.72  16.89  15.62  14.55
  TOTAL HOUSING STOCK    35.44  34.74  34.15  33.40  32.69


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES          8.60   8.50   8.40   8.26   8.11
  NEW HOMES               7.50   6.72   6.24   5.55   5.02
  TOTAL HOUSING STODR     8.58   8.45   8.35   8.19   8.03


RESIDENTIAL
CUSTOMERS                19.44  19.57  19.71  19.82  19.93

HOUSEHOLDS               43636  44247  44867  45495  46132
(TEN-THOUSANDS)

AVERAGE ANNUAL GROWTH RATE OF RESIDENTIAL CUSTOMERS, 1981-2000:   1.10%
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#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

GAS DEMAND MODEL FOR S. CARO.

ANNUAL SALES, SUPPLY AND PRICE OF GAS

	GAS SALES						AVERAGE GAS PRICE			
YEAR	RESIDENTIAL	COMMERCIAL	INDUSTRIAL AND ALL OTHER	TOTAL SALES	GAS SUPPLY	ANNUAL SUPPLY DEFICIT	RESIDENTIAL	COMMERCIAL AND ALL OTHER	INDUSTRIAL	DEMAND WEIGHTED AVERAGE PRICE
	(BCF)				(BCF)	(BCF)	($/MMBTU IN $1981)			
1981	30.87	17.74	62.60	111.21	.00	.00	4.78	3.88	3.87	4.12
1982	30.02	16.94	55.82	102.78	.00	.00	5.34	4.44	4.43	4.70
1983	30.25	16.66	53.99	100.89	.00	.00	5.47	4.57	4.56	4.83
1984	31.22	16.61	53.15	100.98	.00	.00	5.41	4.51	4.50	4.78
1985	32.63	16.78	53.36	102.77	.00	.00	5.25	4.35	4.34	4.63
1986	33.62	16.76	54.46	104.83	.00	.00	5.26	4.36	4.35	4.64
1987	33.95	16.44	55.22	105.61	.00	.00	5.49	4.59	4.58	4.87
1988	33.85	15.89	55.46	105.21	.00	.00	5.90	5.00	4.99	5.28
1989	33.64	15.31	55.23	104.18	.00	.00	6.35	5.45	5.44	5.74
1990	33.73	14.86	54.85	103.44	.00	.00	6.68	5.78	5.77	6.07
1991	34.06	14.59	54.50	103.15	.00	.00	6.84	5.94	5.93	6.23
1992	34.89	14.48	54.83	104.20	.00	.00	6.83	5.93	5.92	6.23
1993	35.76	14.44	55.77	105.97	.00	.00	6.78	5.80	5.87	6.18
1994	36.55	14.31	56.94	107.79	.00	.00	6.86	5.96	5.95	6.26
1995	37.02	14.13	58.11	109.26	.00	.00	7.00	6.10	6.09	6.40
1996	37.48	13.89	59.19	110.56	.00	.00	7.23	6.33	6.32	6.63
1997	37.79	13.66	60.17	111.63	.00	.00	7.46	6.56	6.55	6.86
1998	38.28	13.44	61.09	112.81	.00	.00	7.69	6.79	6.78	7.09
1999	38.52	13.19	61.92	113.63	.00	.00	7.96	7.06	7.05	7.36
2000	38.86	12.94	62.72	114.52	.00	.00	8.25	7.35	7.34	7.65

ANNUAL RATES OF GROWTH

1981-1985	1.40%	-1.39%	-3.91%	-1.95%	.00%	.00%	2.37%	2.90%	2.91%	2.94%
1985-1990	.67%	-2.40%	.55%	.13%	.00%	.00%	4.94%	5.85%	5.86%	5.56%
1990-1995	1.88%	-1.00%	1.16%	1.10%	.00%	.00%	.94%	1.08%	1.09%	1.07%
1995-2000	.98%	-1.75%	1.54%	.94%	.00%	.00%	3.34%	3.80%	3.80%	3.63%
1981-2000	1.22%	-1.65%	.01%	.15%	.00%	.00%	2.91%	3.42%	3.43%	3.31%

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#37 -- ADDABBO - HEINZ SCENARIO                                                   FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR S. CARO.

                           1981   1982   1983   1984   1985   1986   1987   1988   1989   1990   1991   1992   1993   1994   1995
                           ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----

SPACE HEATING
SATURATION (%)
  EXISTING HOMES                 26.51  26.61  26.66  26.83  27.03  27.15  27.12  26.94  26.69  26.44  26.29  26.19  26.09  25.99
  NEW HOMES                      31.16  26.44  28.59  32.50  33.91  31.54  26.79  22.41  20.06  19.72  21.09  22.95  23.46  23.34
  TOTAL HOUSING STOCK     26.82  26.66  26.60  26.73  27.02  27.24  27.28  27.11  26.80  26.49  26.27  26.16  26.11  26.03  25.92


WATER HEATING
SATURATION (%)
  EXISTING HOMES                 12.75  13.20  13.70  14.34  14.90  15.26  15.40  15.41  15.39  15.43  15.57  15.76  15.91  16.01
  NEW HOMES                      28.83  24.63  26.69  30.38  31.72  29.55  25.18  21.16  19.01  18.72  20.00  21.75  22.24  22.15
  TOTAL HOUSING STOCK     13.26  13.29  13.58  14.13  14.87  15.41  15.69  15.70  15.59  15.50  15.52  15.68  15.92  16.07  16.17


COOKING
SATURATION (%)
  EXISTING HOMES                 10.86  10.88  11.15  11.41  11.62  11.59  11.58  11.49  11.46  11.42  11.59  11.51  11.71  11.51
  NEW HOMES                      13.70  13.06  14.30  15.21  15.79  14.37  13.82  12.76  12.32  11.79  12.78  11.64  13.03  10.96
  TOTAL HOUSING STOCK     10.98  10.96  10.95  11.25  11.54  11.74  11.67  11.65  11.53  11.49  11.43  11.62  11.51  11.75  11.49


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES                   .87   1.01   1.19   1.37   1.53   1.62   1.71   1.79   1.89   2.00   2.14   2.23   2.36   2.41
  NEW HOMES                       5.40   5.24   5.59   5.55   5.74   5.34   5.73   5.82   6.01   5.79   6.31   5.30   6.22   4.94
  TOTAL HOUSING STODR       .91   1.02   1.15   1.33   1.51   1.65   1.74   1.83   1.91   2.01   2.10   2.25   2.31   2.46   2.47


RESIDENTIAL
CUSTOMERS                 31.08  31.76  32.57  33.68  34.94  36.02  36.85  37.54  38.10  38.71  39.21  39.94  40,59  41.38  41.90

HOUSEHOLDS               105451 107961 110531 113161 115854 118287 120771 123380 125897 128541 130623 132739 134890 137075 139296
(TEN-THOUSANDS)
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#37 -- ADDABBO - HEINZ SCENARIO                                                  FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR S. CARO.

                        1996   1997   1998   1999   2000
                        ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----


SPACE HEATING
SATURATION (%)
  EXISTING HOMES       25.86  25.71  25.55  25.37  25.16
  NEW HOMES            22.52  21.79  21.14  20.23  19.26
  TOTAL HOUSING STOCK  25.77  25.61  25.43  25.23  25.01


WATER HEATING
SATURATION (%)
  EXISTING HOMES       16.05  16.08  16.09  16.07  16.02
  NEW HOMES            21.40  20.74  20.15  19.32  18.43
  TOTAL HOUSING STOCK  16.19  16.20  16.20  16.15  16.08


COOKING
SATURATION (%)
  EXISTING HOMES       11.61  11.40  11 47  11.23  11.23
  NEW HOMES            11.83  10.17  10.90   9.25   9.60
  TOTAL HOUSING STOCK  11.62  11.37  11.46  11.18  11.18


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES        2.49   2.52   2.60   2.61   2.67
  NEW HOMES             5.76   4.82   5.55   4.60   5.11
  TOTAL HOUSING STODR   2.57   2.58   2.67   2.66   2.73


RESIDENTIAL
CUSTOMERS              42.58  43.05  43.71  44.14  44.71

HOUSEHOLDS            141552 143845 146176 148544 150950
(TEN-THOUSANDS)

AVERAGE ANNUAL GROWTH RATE OF RESIDENTIAL CUSTOMERS, 1981-2000:   1.93%
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#37 -- ADDABBO - HEINZ SCENARIO

FRI, MAY 13, 1983, 3:37 PM

GAS DEMAND MODEL FOR SO. DAK.

ANNUAL SALES, SUPPLY AND PRICE OF GAS

YEAR	GAS SALES: RESIDENTIAL	GAS SALES: COMMERCIAL	GAS SALES: INDUSTRIAL AND ALL OTHER	GAS SALES: TOTAL SALES	GAS SUPPLY	ANNUAL SUPPLY DEFICIT	AVERAGE GAS PRICE: RESIDENTIAL	AVERAGE GAS PRICE: COMMERCIAL AND ALL OTHER	AVERAGE GAS PRICE: INDUSTRIAL	DEMAND WEIGHTED AVERAGE PRICE
	(BCF)				(BCF)	(BCF)	($/MMBTU IN $1981)			
1981	9.83	7.34	4.74	21.91	.00	.00	3.85	3.43	3.28	3.59
1982	9.28	6.97	4.54	20.79	.00	.00	4.41	3.99	3.84	4.14
1983	9.23	6.83	4.45	20.51	.00	.00	4.54	4.12	3.97	4.28
1984	9.46	6.80	4.39	20.66	.00	.00	4.48	4.06	3.91	4.22
1985	9.87	6.87	4.37	21.11	.00	.00	4.32	3.90	3.75	4.07
1986	10.10	6.85	4.42	21.36	.00	.00	4.33	3.91	3.76	4.08
1987	10.06	6.69	4.47	21.22	.00	.00	4.56	4.14	3.99	4.31
1988	9.88	6.43	4.52	20.83	.00	.00	4.97	4.55	4.40	4.72
1989	9.68	6.17	4.55	20.39	.00	.00	5.42	5.00	4.85	5.17
1990	9.62	5.97	4.56	20.15	.00	.00	5.75	5.33	5.18	5.50
1991	9.69	5.84	4.56	20.09	.00	.00	5.91	5.49	5.34	5.66
1992	9.91	5.79	4.56	20.26	.00	.00	5.90	5.48	5.33	5.65
1993	10.19	5.76	4.59	20.54	.00	.00	5.85	5.43	5.28	5.60
1994	10.37	5.68	4.64	20.70	.00	.00	5.93	5.51	5.36	5.69
1995	10.50	5.60	4.71	20.80	.00	.00	6.07	5.65	5.50	5.83
1996	10.56	5.48	4.77	20.82	.00	.00	6.30	5.88	5.73	6.06
1997	10.64	5.36	4.84	20.84	.00	.00	6.53	6.11	5.96	6.29
1998	10.72	5.25	4.91	20.88	.00	.00	6.76	6.34	6.19	6.52
1999	10.77	5.14	4.97	20.88	.00	.00	7.03	6.61	6.46	6.79
2000	10.82	5.02	5.04	20.87	.00	.00	7.32	6.90	6.75	7.08

ANNUAL RATES OF GROWTH

1981-1985	.11%	-1.65%	-1.97%	-.92%	.00%	.00%	2.92%	3.26%	3.40%	3.19%
1985-1990	-.52%	-2.77%	.84%	-.93%	.00%	.00%	5.89%	6.45%	6.67%	6.22%
1990-1995	1.76%	-1.27%	.63%	.64%	.00%	.00%	1.09%	1.17%	1.21%	1.18%
1995-2000	.60%	-2.16%	1.38%	.07%	.00%	.00%	3.82%	4.08%	4.18%	3.97%
1981-2000	.50%	-1.98%	.33%	-.25%	.00%	.00%	3.44%	3.75%	3.87%	3.65%

#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

GAS DEMAND MODEL FOR SO. DAK.

	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
SPACE HEATING SATURATION (%)															
EXISTING HOMES		41.25	41.19	41.20	41.40	41.50	41.60	41.43	41.12	40.79	40.50	40.34	40.25	40.15	40.03
NEW HOMES		42.24	37.08	40.72	46.79	49.32	46.68	40.54	34.63	31.60	31.19	33.45	36.45	37.36	37.32
TOTAL HOUSING STOCK	41.81	41.28	41.08	41.19	41.54	41.76	41.71	41.41	40.97	40.58	40.30	40.18	40.17	40.09	39.97
WATER HEATING SATURATION (%)															
EXISTING HOMES		34.26	34.12	34.47	35.15	35.47	35.27	34.70	34.01	33.49	33.20	33.22	33.35	33.31	33.18
NEW HOMES		36.52	32.02	35.44	41.15	43.61	41.18	35.57	30.27	27.62	27.30	29.35	32.09	32.96	32.96
TOTAL HOUSING STOCK	35.75	34.32	34.07	34.50	35.31	35.65	35.41	34.72	33.93	33.36	33.07	33.13	33.32	33.30	33.18
COOKING SATURATION (%)															
EXISTING HOMES		16.51	16.33	16.59	17.09	17.46	17.29	17.12	16.73	16.60	16.43	16.42	16.42	16.31	16.09
NEW HOMES		14.38	13.59	14.93	17.53	19.61	17.89	16.88	14.40	14.06	13.26	13.38	13.42	13.02	12.05
TOTAL HOUSING STOCK	16.76	16.45	16.26	16.54	17.10	17.51	17.30	17.11	16.67	16.55	16.36	16.36	16.35	16.24	16.00
CLOTHES DRYING SATURATION (%)															
EXISTING HOMES		5.05	4.92	5.01	5.20	5.27	5.12	4.96	4.75	4.65	4.56	4.55	4.54	4.48	4.38
NEW HOMES		1.83	1.73	1.82	2.07	2.40	2.21	2.34	2.10	2.21	2.06	2.00	1.89	1.78	1.59
TOTAL HOUSING STOCK	5.28	4.97	4.84	4.93	5.12	5.21	5.06	4.90	4.69	4.59	4.50	4.49	4.48	4.42	4.31
RESIDENTIAL CUSTOMERS	9.52	9.51	9.62	9.84	10.15	10.36	10.46	10.50	10.49	10.53	10.60	10.72	10.87	10.98	11.07
HOUSEHOLDS (TEN-THOUSANDS)	24602	25010	25425	25847	26276	26621	26969	27323	27681	28043	28394	28749	29108	29472	29840

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#37 -- ADDABBO - HEINZ SCENARIO                                                          FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR SO. DAK.

                              1996   1997   1998   1999   2000
                              ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----


SPACE HEATING
SATURATION (%)
  EXISTING HOMES             39.86  39.67  39.47  39.24  38.98
  NEW HOMES                  36.19  35.19  34.33  33.05  31.69
  TOTAL HOUSING STOCK        39.78  39.57  39.36  39.10  38.82


WATER HEATING
SATURATION (%)
  EXISTING HOMES             32.92  32.66  32.40  32.08  31.75
  NEW HOMES                  31.96  31.09  30.35  29.23  28.03
  TOTAL HOUSING STOCK        32.90  32.63  32.35  32.02  31.66


COOKING
SATURATION (%)
  EXISTING HOMES             15.86  15.61  15.37  15.09  14.78
  NEW HOMES                  11.25  10.49   9.82   9.02   8.25
  TOTAL HOUSING STOCK        15.75  15.50  15.25  14.95  14.64


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES              4.27   4.16   4.06   3.94   3.82
  NEW HOMES                   1.49   1.39   1.30   1.20   1.09
  TOTAL HOUSING STODR         4.20   4.10   3.99   3.88   3.76


RESIDENTIAL
CUSTOMERS                    11.13  11.20  11.27  11.32  11.36

HOUSEHOLDS                   30213  30591  30973  31361  31753
(TEN-THOUSANDS)

AVERAGE ANNUAL GROWTH RATE OF RESIDENTIAL CUSTOMERS, 1981-2000:     .93%
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#37 -- ADDABBO - HEINZ SCENARIO                                                              FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR TENN.


                                              ANNUAL SALES, SUPPLY AND PRICE OF GAS

                         GAS SALES                                                               AVERAGE GAS PRICE
          --------------------------------------------------                             ------------------------------------      DEMAND
                                       INDUSTRIAL                                                                                 WEIGHTED
                                          AND         TOTAL        GAS         ANNUAL                  COMMERCIAL                 AVERAGE
YEAR    RESIDENTIAL  COMMERCIAL      ALL OTHER       SALES       SUPPLY     SUPPLY                      AND                       PRICE
----    -----------  ----------     ----------  ----------   ----------    DEFICIT   RESIDENTIAL   ALL OTHER    INDUSTRIAL   ----------
                                                                           ---------- ----------   ----------   ----------
        --------------------( BCF )-------------------    (  BCF )     (  BCF )    --------------($/MMBTU IN $1981)--------------
1981        43.07        41.72        119.16      203.95          .00          .00       3.44         3.49         2.99         3.19
1982        40.86        39.61        105.72      186.19          .00          .00       4.00         4.05         3.55         3.76
1983        40.75        38.82        101.37      180.94          .00          .00       4.13         4.18         3.68         3.89
1984        41.85        38.64         99.20      179.69          .00          .00       4.07         4.12         3.62         3.83
1985        43.63        38.97         99.33      181.93          .00          .00       3.91         3.96         3.46         3.68
1986        44.53        38.83        101.20      184.57          .00          .00       3.92         3.97         3.47         3.68
1987        44.19        37.94        102.23      184.36          .00          .00       4.15         4.20         3.70         3.91
1988        43.13        36.47        102.03      181.64          .00          .00       4.56         4.61         4.11         4.32
1989        41.97        34.95        100.86      177.79          .00          .00       5.01         5.06         4.56         4.76
1990        41.38        33.77         99.48      174.63          .00          .00       5.34         5.39         4.89         5.09
1991        41.23        33.04         98.27      172.54          .00          .00       5.50         5.55         5.05         5.25
1992        41.85        32.70         98.37      172.93          .00          .00       5.49         5.54         5.04         5.24
1993        42.44        32.50         99.70      174.64          .00          .00       5.44         5.49         4.99         5.19
1994        42.89        32.07        101.51      176.48          .00          .00       5.52         5.57         5.07         5.27
1995        42.80        31.54        103.37      177.71          .00          .00       5.66         5.71         5.21         5.41
1996        42.74        30.87        105.03      178.64          .00          .00       5.89         5.94         5.44         5.63
1997        42.42        30.21        106.53      179.16          .00          .00       6.12         6.17         5.67         5.86
1998        42.40        29.58        107.90      179.87          .00          .00       6.35         6.40         5.90         6.09
1999        41.99        28.89        109.15      180.03          .00          .00       6.62         6.67         6.17         6.36
2000        41.79        28.20        110.34      180.33          .00          .00       6.91         6.96         6.46         6.64


ANNUAL RATES OF GROWTH
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1981-1985      .32%       -1.69%        -4.45%      -2.82%         .00%         .00%      3.25%        3.21%        3.72%        3.62%
1985-1990    -1.05%       -2.82%          .03%       -.82%         .00%         .00%      6.43%        6.36%        7.16%        6.75%
1990-1995      .68%       -1.36%          .77%        .35%         .00%         .00%      1.17%        1.16%        1.28%        1.20%
1995-2000     -.48%       -2.21%         1.31%        .29%    .    .00%         .00%      4.07%        4.04%        4.39%        4.20%
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1981-2000     -.16%       -2.04%         -.40%       -.65%         .00%         .00%      3.74%        3.70%        4.14%        3.94%
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#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

GAS DEMAND MODEL FOR TENN.

	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
SPACE HEATING SATURATION (%)															
EXISTING HOMES		27.63	27.28	26.95	26.75	26.54	26.26	25.81	25.24	24.64	24.09	23.68	23.32	22.94	22.56
NEW HOMES		19.79	15.81	17.37	20.72	21.62	18.81	14.27	10.69	8.90	8.49	9.13	10.09	10.20	9.90
TOTAL HOUSING STOCK	28.05	27.36	26.88	26.62	26.54	26.39	26.02	25.45	24.78	24.14	23.67	23.29	22.97	22.60	22.21
WATER HEATING SATURATION (%)															
EXISTING HOMES		16.81	16.51	16.43	16.52	16.43	16.11	15.59	15.00	14.50	14.12	13.92	13.70	13.54	13.28
NEW HOMES		12.39	9.86	10.92	13.16	13.78	11.92	8.97	6.70	5.59	5.34	5.74	6.35	6.42	6.24
TOTAL HOUSING STOCK	17.63	16.66	16.28	16.24	16.40	16.35	15.98	15.38	14.74	14.22	13.88	13.70	13.50	13.35	13.09
COOKING SATURATION (%)															
EXISTING HOMES		11.70	12.06	12.71	13.41	14.01	14.24	14.42	14.47	14.58	14.69	15.04	15.08	15.46	15.31
NEW HOMES		25.44	24.15	26.25	28.02	28.89	26.19	24.63	22.35	21.28	20.29	21.84	20.11	22.17	18.85
TOTAL HOUSING STOCK	11.94	12.18	12.48	13.19	13.92	14.48	14.62	14.74	14.72	14.79	14.84	15.22	15.22	15.65	15.40
CLOTHES DRYING SATURATION (%)															
EXISTING HOMES		.85	1.13	1.44	1.77	2.06	2.25	2.41	2.56	2.75	2.96	3.20	3.39	3.61	3.71
NEW HOMES		9.12	8.89	9.49	9.45	9.77	9.15	9.81	9.98	10.30	9.97	10.82	9.21	10.73	8.66
TOTAL HOUSING STODR	.90	1.14	1.40	1.72	2.04	2.31	2.47	2.64	2.80	2.99	3.15	3.41	3.55	3.80	3.84
RESIDENTIAL CUSTOMERS	46.82	47.37	48.34	49.88	51.78	53.15	54.03	54.65	55.08	55.65	56.14	57.07	57.75	58.72	59.09
HOUSEHOLDS (TEN-THOUSANDS)	165958	170224	174598	179085	183688	187821	192047	196368	200786	205304	208897	212552	216272	220057	223908

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#37 -- ADDABBO - HEINZ SCENARIO                                                         FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR TENN.

                           1996   1997   1998   1999   2000
                           ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----


SPACE HEATING
SATURATION (X)
  EXISTING HOMES          22.14  21.72  21.30  20.87  20.43
  NEW HOMES                9.18   8.56   8.01   7.37   6.74
  TOTAL HOUSING STOCK     21.79  21.37  20.94  20.50  20.06


WATER HEATING
SATURATION (%)
  EXISTING HOMES          12.96  12.65  12.34  12.02  11.69
  NEW HOMES                5.79   5.40   5.07   4.66   4.27
  TOTAL HOUSING STOCK     12.77  12.45  12.14  11.82  11.49


COOKING
SATURATION (%)
  EXISTING HOMES          15.52  15.33  15.49  15.22  15.26
  NEW HOMES               20.00  17.24  18.21  15.49  15.87
  TOTAL HOUSING STOCK     15.64  15.38  15.56  15.23  15.28


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES           3.86   3.93   4.06   4.11   4.20
  NEW HOMES               10.04   8.51   9.74   8.17   9.06
  TOTAL HOUSING STODR      4.02   4.05   4.22   4.22   4.33


RESIDENTIAL
CUSTOMERS                 59.81  60.10  60.78  60.90  61.51

HOUSEHOLDS               227826 231813 235870 239997 244197
(TEN-THOUSANDS)

AVERAGE ANNUAL GROWTH RATE OF RESIDENTIAL CUSTOMERS, 1981-2000:   1.45%
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#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

GAS DEMAND MODEL FOR TEXAS

ANNUAL SALES, SUPPLY AND PRICE OF GAS

YEAR	GAS SALES: RESIDENTIAL	GAS SALES: COMMERCIAL	GAS SALES: INDUSTRIAL AND ALL OTHER	GAS SALES: TOTAL SALES	GAS SUPPLY	ANNUAL SUPPLY DEFICIT	AVERAGE GAS PRICE: RESIDENTIAL	AVERAGE GAS PRICE: COMMERCIAL AND ALL OTHER	AVERAGE GAS PRICE: INDUSTRIAL	DEMAND WEIGHTED AVERAGE PRICE
	(BCF)				(BCF)	(BCF)	($/MMBTU IN $1981)			
1981	208.51	139.30	1643.53	1991.34	.00	.00	4.03	3.60	3.27	3.37
1982	201.07	134.12	1496.63	1831.81	.00	.00	4.59	4.16	3.83	3.94
1983	205.24	133.29	1427.84	1766.36	.00	.00	4.72	4.29	3.96	4.07
1984	216.02	134.42	1387.00	1737.44	.00	.00	4.66	4.23	3.90	4.02
1985	230.81	137.33	1379.36	1747.50	.00	.00	4.50	4.07	3.74	3.87
1986	239.74	138.30	1394.71	1772.74	.00	.00	4.51	4.08	3.75	3.88
1987	242.80	136.70	1395.93	1775.43	.00	.00	4.74	4.31	3.98	4.11
1988	242.10	133.08	1376.54	1751.73	.00	.00	5.15	4.72	4.39	4.52
1989	241.54	129.14	1342.25	1712.92	.00	.00	5.60	5.17	4.84	4.97
1990	244.32	126.43	1303.98	1674.73	.00	.00	5.93	5.50	5.17	5.31
1991	250.33	125.09	1272.51	1647.93	.00	.00	6.09	5.66	5.33	5.47
1992	260.72	125.24	1254.03	1639.99	.00	.00	6.08	5.65	5.32	5.47
1993	270.99	125.87	1249.07	1645.93	.00	.00	6.03	5.60	5.27	5.42
1994	281.51	125.72	1254.71	1661.95	.00	.00	6.11	5.68	5.35	5.50
1995	287.74	125.15	1254.81	1667.70	.00	.00	6.25	5.82	5.49	5.65
1996	294.92	123.95	1260.85	1679.71	.00	.00	6.48	6.05	5.72	5.88
1997	299.62	122.82	1259.37	1681.81	.00	.00	6.71	6.28	5.95	6.11
1998	307.32	121.76	1260.02	1689.09	.00	.00	6.94	6.51	6.18	6.34
1999	311.54	120.45	1254.75	1686.74	.00	.00	7.21	6.78	6.45	6.61
2000	317.87	119.10	1251.58	1688.55	.00	.00	7.50	7.07	6.74	6.91

ANNUAL RATES OF GROWTH

1981-1985	2.57%	-.36%	-4.29%	-3.21%	.00%	.00%	2.80%	3.12%	3.41%	3.47%
1985-1990	1.14%	-1.64%	-1.12%	-.85%	.00%	.00%	5.67%	6.21%	6.69%	6.53%
1990-1995	3.33%	-.20%	-.77%	-.08%	.00%	.00%	1.06%	1.14%	1.21%	1.25%
1995-2000	2.01%	-.99%	-.05%	.25%	.00%	.00%	3.71%	3.97%	4.19%	4.11%
1981-2000	2.24%	-.82%	-1.42%	-.06%	.00%	.00%	3.32%	3.62%	3.88%	3.84%

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#37 -- ADDABBO - HEINZ SCENARIO                                                                      FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR TEXAS

                           1981   1982   1983   1984   1985   1986   1987   1988   1989   1990   1991   1992   1993   1994   1995
                           ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----

SPACE HEATING
SATURATION (%)
  EXISTING HOMES                 63.15  64.00  64.99  66.11  67.02  67.44  67.60  67.63  67.67  67.79  68.04  68.35  68.57  68.71
  NEW HOMES                      88.69  85.50  86.42  88.26  88.76  87.17  83.57  79.15  75.99  75.07  76.33  78.03  78.14  77.57
  TOTAL HOUSING STOCK    64.03  64.19  64.87  65.86  67.01  67.74  68.10  68.13  68.02  67.95  68.01  68.28  68.63  68.84  68.97


WATER HEATING
SATURATION (%)
  EXISTING HOMES                 63.84  64.20  65.51  67.23  68.14  67.91  67.84  66.09  65.52  65.43  65.86  66.45  66.61  66.58
  NEW HOMES                      88.56  85.54  86.47  88.26  88.75  87.24  83.81  79.63  76.66  75.81  77.01  78.63  78.74  78.21
  TOTAL HOUSING STOCK    66.74  64.84  65.07  66.36  68.08  68.82  68.55  67.59  66.54  65.88  65.74  66.18  66.80  66.96  66.91


COOKING
SATURATION (%)
  EXISTING HOMES                 46.92  46.39  46.72  47.34  47.39  46.69  45.64  44.58  43.68  43.18  43.09  42.17  42.59  41.32
  NEW HOMES                      33.15  33.74  36.45  39.76  41.01  39.19  36.34  33.70  31.81  31.41  32.22  29.12  32.21  27.70
  TOTAL HOUSING STOCK    47.63  46.36  45.88  46.31  47.03  47.18  46.44  45.33  44.22  43.29  42.83  42.78  41.79  42.29  40.93


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES                  7.55   8.14   9.03  10.04  10.82  11.17  11.37  11.57  11.86  12.30  12.86  13.14  13.75  13.79
  NEW HOMES                      23.35  24.56  25.88  26.81  27.40  27.34  27.42  27.60  27.56  27.76  28.05  25.43  27.88  24.79
  TOTAL HOUSING STODR     7.91   8.19   8.80   9.71  10.72  11.37  11.71  11.98  12.10  12.38  12.75  13.30  13.50  14.16  14.11


RESIDENTIAL
CUSTOMERS               289.97 294.74 304.95 319.48 336.24 347.39 354.54 359.21 363.38 368.75 374.87 383.62 390.60 400.54 405.03

HOUSEHOLDS              508574 524747 541434 558652 576417 590193 604299 618741 633529 648671 661385 674348 687565 701041 714781
(TEN-THOUSANDS)
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#37 -- ADDABBO - HEINZ SCENARIO                                                    FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR TEXAS

                       1996   1997   1998   1999   2000
                       ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----


SPACE HEATING
SATURATION (%)
  EXISTING HOMES      69.75  68.75  68.73  68.63  68.48
  NEW HOMES           76.16  74.80  73.48  71.74  69.82
  TOTAL HOUSING STOCK 68.96  68.93  68.86  68.72  68.52


WATER HEATING
SATURATION (%)
  EXISTING HOMES      66.27  65.95  65.64  65.21  64.73
  NEW HOMES           76.90  75.62  74.39  72.76  70.95
  TOTAL HOUSING STOCK 66.58  66.23  65.89  65.43  64.91


COOKING
SATURATION (%)
  EXISTING HOMES      41.33  40.04  40.03  38.74  38.47
  NEW HOMES           29.53  25.34  27.16  23.23  24.17
  TOTAL HOUSING STOCK 40.98  39.61  39.65  38.29  38.05


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES      14.18  14.14  14.52  14.45  14.71
  NEW HOMES           27.01  24.27  26.57  23.88  25.68
  TOTAL HOUSING STODR 14.55  14.44  14.87  14.72  15.03


RESIDENTIAL
CUSTOMERS            412.66 416.23 423.86 426.96 433.20

HOUSEHOLDS           728791 743075 757640 772489 787630
(TEN-THOUSANDS)

AVERAGE ANNUAL GROWTH RATE OF RESIDENTIAL CUSTOMERS, 1981-2000:   2.14%
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#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

GAS DEMAND MODEL FOR UTAH

ANNUAL SALES, SUPPLY AND PRICE OF GAS

	GAS SALES						AVERAGE GAS PRICE			
YEAR	RESIDENTIAL	COMMERCIAL	INDUSTRIAL AND ALL OTHER	TOTAL SALES	GAS SUPPLY	ANNUAL SUPPLY DEFICIT	RESIDENTIAL	COMMERCIAL AND ALL OTHER	INDUSTRIAL	DEMAND WEIGHTED AVERAGE PRICE
	(BCF)				(BCF)	(BCF)	($/MMBTU IN $1981)			
1981	48.14	21.69	36.93	106.77	.00	.00	3.11	2.61	2.61	2.84
1982	45.65	20.36	31.49	97.49	.00	.00	3.67	3.17	3.17	3.40
1983	45.82	19.92	29.93	95.67	.00	.00	3.80	3.30	3.30	3.54
1984	47.37	19.85	29.17	96.39	.00	.00	3.74	3.24	3.24	3.49
1985	49.82	20.12	29.32	99.26	.00	.00	3.58	3.08	3.08	3.33
1986	50.72	20.04	29.99	100.75	.00	.00	3.59	3.09	3.09	3.34
1987	50.17	19.47	30.15	99.78	.00	.00	3.82	3.32	3.32	3.57
1988	48.70	18.55	29.76	97.00	.00	.00	4.23	3.73	3.73	3.98
1989	47.32	17.62	29.02	93.96	.00	.00	4.68	4.18	4.18	4.43
1990	46.63	16.92	28.20	91.76	.00	.00	5.01	4.51	4.51	4.76
1991	46.60	16.50	27.59	90.69	.00	.00	5.17	4.67	4.67	4.93
1992	47.35	16.30	27.32	90.97	.00	.00	5.16	4.66	4.66	4.92
1993	48.34	16.19	27.54	92.06	.00	.00	5.11	4.61	4.61	4.87
1994	48.80	15.93	27.89	92.61	.00	.00	5.19	4.69	4.69	4.95
1995	48.99	15.61	28.20	92.79	.00	.00	5.33	4.83	4.83	5.09
1996	48.82	15.21	28.49	92.51	.00	.00	5.56	5.06	5.06	5.32
1997	48.67	14.81	28.77	92.25	.00	.00	5.79	5.29	5.29	5.55
1998	48.53	14.44	28.95	91.92	.00	.00	6.02	5.52	5.52	5.78
1999	48.25	14.04	29.09	91.38	.00	.00	6.29	5.79	5.79	6.05
2000	47.91	13.63	29.23	90.77	.00	.00	6.58	6.08	6.08	6.34

ANNUAL RATES OF GROWTH

1981-1985	.86%	-1.87%	-5.60%	-1.81%	.00%	.00%	3.58%	4.23%	4.23%	4.11%
1985-1990	-1.31%	-3.40%	-.78%	-1.56%	.00%	.00%	6.95%	7.93%	7.93%	7.42%
1990-1995	.99%	-1.60%	-.00%	.22%	.00%	.00%	1.25%	1.38%	1.38%	1.35%
1995-2000	-.44%	-2.67%	.72%	-.44%	.00%	.00%	4.30%	4.71%	4.71%	4.49%
1981-2000	-.03%	-2.42%	-1.22%	-.85%	.00%	.00%	4.02%	4.55%	4.55%	4.33%

#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

GAS DEMAND MODEL FOR UTAH

	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
SPACE HEATING SATURATION (%)															
EXISTING HOMES		79.04	78.41	77.92	77.70	77.34	76.72	75.72	74.49	73.23	72.07	71.18	70.42	69.57	68.67
NEW HOMES		72.19	64.68	65.92	69.61	70.64	66.35	57.75	48.74	43.17	41.28	42.80	45.14	44.88	43.46
TOTAL HOUSING STOCK	80.35	78.72	77.77	77.36	77.33	77.13	76.38	75.14	73.67	72.27	71.15	70.33	69.66	68.83	67.92
WATER HEATING SATURATION (%)															
EXISTING HOMES		72.83	71.79	71.86	72.59	72.51	71.25	69.20	67.03	65.26	64.02	63.47	63.13	62.38	61.43
NEW HOMES		71.03	63.77	65.04	68.66	69.70	65.53	57.22	48.57	43.24	41.43	42.91	45.18	44.93	43.59
TOTAL HOUSING STOCK	76.72	72.74	71.42	71.55	72.41	72.42	71.07	68.82	66.43	64.55	63.34	62.85	62.59	61.85	60.90
COOKING SATURATION (%)															
EXISTING HOMES		18.96	18.93	19.39	20.22	20.97	20.93	20.82	20.44	20.33	20.18	20.23	20.29	20.21	19.98
NEW HOMES		23.35	22.03	24.04	27.97	30.80	28.09	26.16	22.27	21.52	20.30	20.47	20.56	19.95	18.49
TOTAL HOUSING STOCK	19.43	19.16	19.08	19.61	20.58	21.29	21.16	21.00	20.49	20.37	20.18	20.24	20.30	20.21	19.94
CLOTHES DRYING SATURATION (%)															
EXISTING HOMES		7.62	7.44	7.60	7.94	8.18	8.05	7.87	7.65	7.59	7.59	7.70	7.83	7.85	7.79
NEW HOMES		7.23	7.19	7.89	9.12	10.44	9.99	10.63	10.00	10.60	10.24	10.17	9.92	9.65	9.00
TOTAL HOUSING STODR	8.08	7.60	7.43	7.61	8.00	8.25	8.11	7.96	7.73	7.69	7.67	7.78	7.89	7.90	7.82
RESIDENTIAL CUSTOMERS	37.86	38.51	39.63	41.19	43.07	44.17	44.82	45.23	45.49	45.92	46.39	47.11	47.90	48.55	49.11
HOUSEHOLDS (TEN-THOUSANDS)	46620	48405	50259	52184	54183	55424	56693	57991	59319	60677	61934	63216	64524	65860	67223

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#37 -- ADDABBO - HEINZ SCENARIO                                                          FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR UTAH

                           1996   1997   1998   1999   2000
                           ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----


SPACE HEATING
SATURATION (%)
  EXISTING HOMES          67.66  66.61  65.54  64.48  63.21
  NEW HOMES               40.74  38.24  35.95  33.27  30.58
  TOTAL HOUSING STOCK     66.85  65.76  64.65  63.46  62.23


WATER HEATING
SATURATION (%)
  EXISTING HOMES          60.20  58.90  57.75  56.43  55.07
  NEW HOMES               40.96  38.56  36.35  33.75  31.15
  TOTAL HOUSING STOCK     59.62  58.36  57.11  55.75  54.35


COOKING
SATURATION (%)
  EXISTING HOMES          19.71  19.41  19.11  18.74  18.33
  NEW HOMES               17.21  16.03  14.96  13.72  12.51
  TOTAL HOUSING STOCK     19.63  19.31  18.90  18.50  18.16


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES           7.69   7.59   7.49   7.36   7.23
  NEW HOMES                8.71   8.41   8.13   7.74   7.35
  TOTAL HOUSING STODR      7.72   7.61   7.51   7.38   7.23


RESIDENTIAL
CUSTOMERS                 49.57  50.02  50.46  50.83  51.18

HOUSEHOLDS                68615  70035  71485  72964  74475
(TEN-THOUSANDS)

AVERAGE ANNUAL GROWTH RATE OF RESIDENTIAL CUSTOMERS, 1981-2000:   1.60%
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#37 -- ADDABBO - HEINZ SCENARIO                                                        FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR VERMONT

                                        ANNUAL SALES, SUPPLY AND PRICE OF GAS

                       GAS SALES                                                          AVERAGE GAS PRICE
        ----------------------------------------------                         ----------------------------------     DEMAND
                                  INDUSTRIAL                            ANNUAL              COMMERCIAL                    WEIGHTED
                                     AND          TOTAL        GAS      SUPPLY                  AND                        AVERAGE
YEAR   RESIDENTIAL COMMERCIAL  ALL OTHER        SALES       SUPPLY     DEFICIT    RESIDENTIAL ALL OTHER   INDUSTRIAL       PRICE
----   ----------  ----------  ----------   ----------   ----------  ----------   ----------  ----------  ----------   ----------
       ---------------------( BCF )---------------------   ( BCF )     ( BCF )    --------------($/MMBTU IN $1981)--------------
1981        1.30        1.29        1.64         4.23          .00         .00          7.22        6.64        5.63         6.43
1982        1.25        1.25        1.51         4.01          .00         .00          7.70        7.20        6.19         7.00
1983        1.23        1.24        1.49         3.96          .00         .00          7.91        7.33        6.32         7.13
1984        1.25        1.23        1.48         3.96          .00         .00          7.85        7.27        6.26         7.08
1985        1.28        1.24        1.48         3.99          .00         .00          7.69        7.11        6.10         6.92
1986        1.28        1.24        1.50         4.02          .00         .00          7.70        7.12        6.11         6.93
1987        1.28        1.22        1.53         4.03          .00         .00          7.93        7.35        6.34         7.15
1988        1.25        1.20        1.55         4.00          .00         .00          8.34        7.76        6.75         7.55
1989        1.22        1.17        1.57         3.96          .00         .00          8.79        8.21        7.20         7.99
1990        1.20        1.15        1.59         3.94          .00         .00          9.12        8.54        7.53         8.31
1991        1.20        1.13        1.60         3.93          .00         .00          9.20        8.70        7.69         8.47
1992        1.21        1.13        1.61         3.95          .00         .00          9.27        8.69        7.68         8.46
1993        1.22        1.13        1.64         3.99          .00         .00          9.22        8.64        7.63         8.40
1994        1.23        1.13        1.67         4.02          .00         .00          9.30        8.72        7.71         8.48
1995        1.23        1.12        1.70         4.04          .00         .00          9.44        8.86        7.85         8.61
1996        1.22        1.11        1.73         4.06          .00         .00          9.67        9.09        8.08         8.83
1997        1.22        1.10        1.76         4.07          .00         .00          9.90        9.32        8.31         9.06
1998        1.22        1.09        1.78         4.09          .00         .00         10.13        9.55        8.54         9.28
1999        1.22        1.08        1.81         4.11          .00         .00         10.40        9.82        8.81         9.55
2000        1.21        1.07        1.84         4.12          .00         .00         10.69       10.11        9.10         9.83


ANNUAL RATES OF GROWTH
----------------------

1981-1985     -.54%      -1.05%      -2.45%       -1.42%         .00%        .00%        1.59%       1.72%       2.02%        1.86%
1985-1990    -1.13%      -1.53%       1.38%        -.29%         .00%        .00%        3.47%       3.73%       4.30%        3.73%
1990-1995      .34%       -.49%       1.36%         .52%         .00%        .00%         .69%        .74%        .84%         .71%
1995-2000     -.21%       -.91%       1.61%         .38%         .00%        .00%        2.52%       2.67%       3.00%        2.68%
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1981-2000     -.38%       -.99%        .61%        -.14%         .00%        .00%        2.09%       2.24%       2.56%        2.26%
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#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

GAS DEMAND MODEL FOR VERMONT

	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
SPACE HEATING SATURATION (%)															
EXISTING HOMES		5.80	5.65	5.53	5.41	5.30	5.19	5.07	4.94	4.83	4.72	4.64	4.56	4.48	4.41
NEW HOMES		1.65	1.35	1.47	1.69	1.81	1.72	1.50	1.30	1.20	1.20	1.30	1.44	1.49	1.52
TOTAL HOUSING STOCK	5.85	5.66	5.52	5.40	5.29	5.20	5.09	4.97	4.84	4.72	4.63	4.56	4.49	4.41	4.34
WATER HEATING SATURATION (%)															
EXISTING HOMES		6.08	5.90	5.80	5.72	5.59	5.45	5.27	5.10	4.94	4.82	4.75	4.68	4.60	4.51
NEW HOMES		1.39	1.15	1.25	1.43	1.53	1.46	1.28	1.11	1.03	1.03	1.12	1.23	1.27	1.29
TOTAL HOUSING STOCK	6.26	5.93	5.75	5.65	5.58	5.48	5.34	5.16	4.98	4.83	4.73	4.66	4.60	4.52	4.43
COOKING SATURATION (%)															
EXISTING HOMES		5.27	5.28	5.34	5.49	5.52	5.62	5.56	5.49	5.44	5.42	5.40	5.37	5.32	5.24
NEW HOMES		5.79	5.69	5.94	6.72	6.54	7.07	6.13	5.37	4.97	4.86	4.68	4.48	4.21	3.80
TOTAL HOUSING STOCK	5.35	5.28	5.29	5.36	5.53	5.55	5.66	5.58	5.49	5.42	5.41	5.38	5.35	5.29	5.20
CLOTHES DRYING SATURATION (%)															
EXISTING HOMES		1.25	1.22	1.22	1.23	1.21	1.20	1.15	1.10	1.07	1.05	1.03	1.02	.99	.97
NEW HOMES		.37	.37	.36	.39	.36	.41	.36	.32	.30	.29	.26	.23	.21	.18
TOTAL HOUSING STODR	1.30	1.22	1.19	1.19	1.20	1.19	1.18	1.13	1.08	1.05	1.03	1.01	1.00	.97	.95
RESIDENTIAL CUSTOMERS	1.11	1.10	1.11	1.12	1.15	1.16	1.18	1.17	1.17	1.17	1.17	1.18	1.18	1.18	1.18
HOUSEHOLDS (TEN-THOUSANDS)	18209	18628	19057	19495	19943	20320	20704	21096	21494	21901	22225	22554	22888	23226	23570

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#37 -- ADDABBO - HEINZ SCENARIO                                            FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR VERMONT

                              1996   1997   1998   1999   2000
                              ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----


SPACE HEATING
SATURATION (%)
  EXISTING HOMES              4.33   4.25   4.18   4.11   4.03
  NEW HOMES                   1.50   1.48   1.47   1.43   1.40
  TOTAL HOUSING STOCK         4.26   4.19   4.11   4.04   3.97


WATER HEATING
SATURATION (%)
  EXISTING HOMES              4.41   4.32   4.23   4.13   4.04
  NEW HOMES                   1.27   1.26   1.25   1.22   1.19
  TOTAL HOUSING STOCK         4.34   4.24   4.15   4.06   3.97


COOKING
SATURATION (%)
  EXISTING HOMES              5.16   5.08   5.01   4.93   4.84
  NEW HOMES                   3.51   3.25   3.10   2.86   2.66
  TOTAL HOUSING STOCK         5.12   5.04   4.97   4.88   4.79


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES               .94    .91    .89    .86    .84
  NEW HOMES                    .16    .15    .14    .12    .11
  TOTAL HOUSING STODR          .92    .89    .87    .84    .82


RESIDENTIAL
CUSTOMERS                     1.18   1.18   1.18   1.17   1.17

HOUSEHOLDS                   23919  24273  24632  24997  25367
(TEN-THOUSANDS)

AVERAGE ANNUAL GROWTH RATE OF RESIDENTIAL CUSTOMERS, 1981-2000:    .29%
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#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

GAS DEMAND MODEL FOR VIRGINIA

ANNUAL SALES, SUPPLY AND PRICE OF GAS

	GAS SALES						AVERAGE GAS PRICE			
YEAR	RESIDENTIAL	COMMERCIAL	INDUSTRIAL AND ALL OTHER	TOTAL SALES	GAS SUPPLY	ANNUAL SUPPLY DEFICIT	RESIDENTIAL	COMMERCIAL AND ALL OTHER	INDUSTRIAL	DEMAND WEIGHTED AVERAGE PRICE
	(BCF)				(BCF)	(BCF)	($/MMBTU IN $1981)			
1981	57.92	29.54	47.50	134.96	.00	.00	4.74	4.20	3.44	4.16
1982	55.43	28.43	39.01	122.87	.00	.00	5.30	4.76	4.00	4.76
1983	55.71	28.07	37.71	121.49	.00	.00	5.43	4.89	4.13	4.90
1984	57.67	28.10	37.33	123.10	.00	.00	5.37	4.83	4.07	4.85
1985	60.68	28.47	37.89	127.04	.00	.00	5.21	4.67	3.91	4.70
1986	62.57	28.53	39.00	130.10	.00	.00	5.22	4.68	3.92	4.71
1987	63.04	28.12	39.59	130.75	.00	.00	5.45	4.91	4.15	4.94
1988	62.36	27.31	39.52	129.20	.00	.00	5.86	5.32	4.56	5.35
1989	61.59	26.43	39.07	127.08	.00	.00	6.31	5.77	5.01	5.80
1990	61.54	25.75	38.47	125.76	.00	.00	6.64	6.10	5.34	6.13
1991	62.28	25.34	38.09	125.71	.00	.00	6.80	6.26	5.50	6.30
1992	63.94	25.21	38.20	127.35	.00	.00	6.79	6.25	5.49	6.29
1993	65.87	25.18	38.93	129.98	.00	.00	6.74	6.20	5.44	6.25
1994	67.17	25.00	39.76	131.94	.00	.00	6.82	6.28	5.52	6.33
1995	68.11	24.75	40.49	133.35	.00	.00	6.96	6.42	5.66	6.47
1996	68.72	24.38	41.11	134.21	.00	.00	7.19	6.65	5.89	6.69
1997	69.37	24.03	41.76	135.15	.00	.00	7.42	6.88	6.12	6.92
1998	70.04	23.68	42.20	135.92	.00	.00	7.65	7.11	6.35	7.15
1999	70.53	23.29	42.57	136.39	.00	.00	7.92	7.38	6.62	7.42
2000	70.93	22.88	42.94	136.75	.00	.00	8.21	7.67	6.91	7.71

ANNUAL RATES OF GROWTH

1981-1985	1.17%	-.92%	-5.50%	-1.50%	.00%	.00%	2.39%	2.69%	3.25%	3.08%
1985-1990	.28%	-1.99%	.30%	-.20%	.00%	.00%	4.97%	5.49%	6.43%	5.46%
1990-1995	2.05%	-.79%	1.03%	1.18%	.00%	.00%	.95%	1.03%	1.17%	1.06%
1995-2000	.82%	-1.56%	1.18%	.51%	.00%	.00%	3.36%	3.62%	4.07%	3.59%
1981-2000	1.07%	-1.34%	-.53%	.07%	.00%	.00%	2.93%	3.22%	3.74%	3.30%

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#37 -- ADDABBO - HEINZ SCENARIO                                                          FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR VIRGINIA

                           1981   1982   1983   1984   1985   1986   1987   1988   1989   1990   1991   1992   1993   1994   1995
                           ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----

SPACE HEATING
SATURATION (%)
  EXISTING HOMES                 30.11  30.31  30.45  30.69  30.94  31.07  31.02  30.79  30.49  30.18  29.97  29.81  29.63  29.44
  NEW HOMES                      38.29  32.38  34.17  37.81  38.76  35.68  30.86  24.87  21.93  21.17  22.21  23.74  23.85  23.32
  TOTAL HOUSING STOCK     30.47  30.38  30.38  30.57  30.93  31.18  31.21  30.99  30.61  30.23  29.95  29.77  29.65  29.49  29.29


WATER HEATING
SATURATION (%)
  EXISTING HOMES                 28.90  28.97  29.29  29.82  30.10  29.99  29.56  28.98  28.47  28.11  28.00  27.96  27.79  27.56
  NEW HOMES                      36.64  31.12  32.82  36.24  37.10  34.13  28.80  23.89  21.10  20.35  21.28  22.67  22.73  22.20
  TOTAL HOUSING STOCK     30.05  29.16  29.04  29.41  30.03  30.31  30.12  29.54  28.83  28.25  27.91  27.82  27.83  27.66  27.42


COOKING
SATURATION (%)
  EXISTING HOMES                 23.44  23.00  22.98  23.16  23.09  22.74  22.11  21.46  20.93  20.58  20.40  20.19  19.89  19.44
  NEW HOMES                      14.87  14.00  14.59  15.86  16.25  15.42  13.43  11.75  10.71  10.34  10.33  10.19   9.77   8.86
  TOTAL HOUSING STOCK     24.06  23.16  22.70  22.70  22.91  22.89  22.52  21.85  21.17  20.63  20.32  20.14  19.94  19.63  19.17


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES                  1.86   1.86   1.91   1.98   2.00   1.98   1.92   1.86   1.82   1.80   1.80   1.80   1.78   1.74
  NEW HOMES                       2.30   2.11   2.03   2.01   1.98   1.88   1.68   1.52   1.39   1.31   1.23   1.11   1.00    .85
  TOTAL HOUSING STODR      1.96   1.88   1.87   1.91   1.98   2.00   1.98   1.91   1.85   1.81   1.79   1.79   1.78   1.76   1.72


RESIDENTIAL
CUSTOMERS                 49.92  49.99  50.81  52.37  54.39  55.83  56.60  56.72  56.62  56.66  56.86  57.40  58.03  58.43  58.60

HOUSEHOLDS               190809 195426 200155 204999 209960 214285 218700 223205 227803 232496 236216 239995 243835 247736 251700
(TEN-THOUSANDS)
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#37 -- ADDABBO - HEINZ SCENARIO                                                FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR VIRGINIA

                         1996   1997   1998   1999   2000
                         ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----


SPACE HEATING
SATURATION (%)
  EXISTING HOMES        29.21  28.96  28.68  28.38  28.06
  NEW HOMES             22.10  21.00  20.02  18.80  17.57
  TOTAL HOUSING STOCK   29.03  28.75  28.46  28.14  27.79


WATER HEATING
SATURATION (%)
  EXISTING HOMES        27.22  26.86  26.50  26.09  25.66
  NEW HOMES             21.03  19.97  19.02  17.85  16.68
  TOTAL HOUSING STOCK   27.06  26.69  26.31  25.88  25.43


COOKING
SATURATION (%)
  EXISTING HOMES        19.03  18.63  18.23  17.80  17.35
  NEW HOMES              8.20   7.74   7.24   6.68   6.13
  TOTAL HOUSING STOCK   18.76  18.35  17.95  17.51  17.06


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES         1.70   1.66   1.62   1.58   1.53
  NEW HOMES               .78    .71    .65    .59    .53
  TOTAL HOUSING STODR    1.68   1.64   1.60   1.55   1.51


RESIDENTIAL
CUSTOMERS               58.60  58.73  58.75  58.66  58.50

HOUSEHOLDS             255727 259819 263976 268208 272491
(TEN-THOUSANDS)

AVERAGE ANNUAL GROWTH RATE OF RESIDENTIAL CUSTOMERS, 1981-2000:     .84%
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#37 -- ADDABBO - HEINZ SCENARIO                                                          FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR WASH.

                                          ANNUAL SALES, SUPPLY AND PRICE OF GAS

                    GAS SALES                                                            AVERAGE GAS PRICE
        ---------------------------------------------                           --------------------------------    DEMAND
                                   INDUSTRIAL                                                                     WEIGHTED
                                      AND        TOTAL       GAS        ANNUAL                COMMERCIAL           AVERAGE
 YEAR   RESIDENTIAL COMMERCIAL    ALL OTHER      SALES      SUPPLY      SUPPLY                   AND                PRICE
                                                                        DEFICIT   RESIDENTIAL ALL OTHER  INDUSTRIAL
 ----   ---------- ----------   ----------  ----------  ----------  ----------  ---------- ----------  ----------  ----------
        ------------------( BCF )------------------     ( BCF )     ( BCF )    --------------($/MMBTU IN $1981)-------------
 1981      27.86      25.68        74.32      127.85         .00         .00       5.43       4.84        4.31        4.66
 1982      26.81      24.71        66.05      117.57         .00         .00       5.99       5.40        4.87        5.24
 1983      26.63      24.34        63.29      114.27         .00         .00       6.12       5.53        5.00        5.37
 1984      26.94      24.26        61.97      113.17         .00         .00       6.06       5.47        4.94        5.32
 1985      27.50      24.43        62.11      114.05         .00         .00       5.90       5.31        4.78        5.16
 1986      27.57      24.38        63.30      115.26         .00         .00       5.91       5.32        4.79        5.17
 1987      27.25      23.99        63.94      115.18         .00         .00       6.14       5.55        5.02        5.40
 1988      26.67      23.31        63.89      113.87         .00         .00       6.55       5.96        5.43        5.80
 1989      26.06      22.58        63.26      111.89         .00         .00       7.00       6.41        5.88        6.25
 1990      25.67      22.01        62.48      110.16         .00         .00       7.33       6.74        6.21        6.58
 1991      25.52      21.66        61.94      109.12         .00         .00       7.49       6.90        6.37        6.74
 1992      25.67      21.53        62.35      109.56         .00         .00       7.48       6.89        6.36        6.73
 1993      25.92      21.49        63.79      111.20         .00         .00       7.43       6.84        6.31        6.67
 1994      26.01      21.33        65.29      112.64         .00         .00       7.51       6.92        6.39        6.75
 1995      26.03      21.13        66.99      114.15         .00         .00       7.65       7.06        6.53        6.88
 1996      25.93      20.85        68.42      115.19         .00         .00       7.88       7.29        6.76        7.11
 1997      25.86      20.57        69.81      116.23         .00         .00       8.11       7.52        6.99        7.33
 1998      25.80      20.30        71.15      117.25         .00         .00       8.34       7.75        7.22        7.56
 1999      25.69      20.01        72.30      118.00         .00         .00       8.61       8.02        7.49        7.82
 2000      25.57      19.70        73.31      118.58         .00         .00       8.90       8.31        7.78        8.11


ANNUAL RATES OF GROWTH
--------------------

1981-1985     -.33%      -1.23%      -4.39%      -2.82%        .00%        .00%       2.10%      2.34%       2.62%       2.60%
1985-1990    -1.36%      -2.07%        .12%       -.69%        .00%        .00%       4.44%      4.88%       5.37%       4.96%
1990-1995      .27%       -.81%       1.40%        .71%        .00%        .00%        .86%       .93%       1.01%        .92%
1995-2000     -.35%      -1.39%       1.82%        .77%        .00%        .00%       3.07%      3.31%       3.57%       3.33%
---------
1981-2000     -.45%      -1.38%       -.07%       -.40%        .00%        .00%       2.63%      2.89%       3.16%       2.96%
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#37 -- ADDABBO - HEINZ SCENARIO                                                        FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR WASH.

                            1981    1982    1983    1984    1985    1986    1987    1988    1989    1990    1991    1992    1993    1994    1995
                            ----    ----    ----    ----    ----    ----    ----    ----    ----    ----    ----    ----    ----    ----    ----


SPACE HEATING
SATURATION (%)
  EXISTING HOMES                   22.53   21.94   21.30   20.89   20.40   20.00   19.54   19.06   18.59   18.16   17.84   17.55   17.25   16.96
  NEW HOMES                         9.09    7.17    7.61    8.59    9.12    8.41    7.01    5.70    5.15    5.10    5.53    6.13    6.34    6.35
  TOTAL HOUSING STOCK      22.70   21.99   21.34   20.82   20.39   20.06   19.65   19.17   18.66   18.10   17.83   17.53   17.26   16.90   16.69


WATER HEATING
SATURATION (%)
  EXISTING HOMES                   10.27   10.02    9.80    9.79    9.65    9.46    9.20    8.91    8.66    8.40    8.30    8.30    8.19    8.07
  NEW HOMES                         6.17    4.90    5.21    5.89    6.25    5.79    4.83    4.00    3.59    3.56    3.86    4.27    4.42    4.43
  TOTAL HOUSING STOCK      10.66   10.10    9.82    9.69    9.63    9.55    9.35    9.07    8.77    8.51    8.35    8.26    8.20    8.10    7.90


COOKING
SATURATION (%)
  EXISTING HOMES                    3.55    3.55    3.64    3.75    3.82    3.83    3.88    3.86    3.84    3.87    3.96    4.06    4.14    4.21
  NEW HOMES                         4.84    4.41    4.86    5.20    5.31    5.81    5.21    4.71    4.33    4.40    5.00    5.61    6.82    6.22
  TOTAL HOUSING STOCK       3.63    3.60    3.59    3.69    3.81    3.86    3.87    3.92    3.89    3.86    3.88    3.98    4.09    4.19    4.26


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES                     .90     .87     .88     .89     .89     .87     .86     .84     .83     .83     .85     .87     .89     .90
  NEW HOMES                          .68     .62     .68     .71     .69     .67     .83     .80     .76     .80     .95    1.09    1.22    1.30
  TOTAL HOUSING STODR        .94     .89     .86     .87     .89     .88     .87     .86     .84     .83     .83     .85     .88     .89     .91


RESIDENTIAL
CUSTOMERS                  34.09   34.44   35.00   35.70   36.67   37.20   37.60   37.94   38.20   38.50   38.77   39.19   39.65   40.07   40.46

HOUSEHOLDS                158836  163823  168967  174273  179745  183466  187263  191140  195096  199135  202241  205396  208600  211855  215159
(TEN-THOUSANDS)
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#37 -- ADDABBO - HEINZ SCENARIO                                                FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR WASH.

                           1996   1997   1998   1999   2000
                           ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----


SPACE HEATING
SATURATION (%)
  EXISTING HOMES          16.65  16.35  16.05  15.76  15.46
  NEW HOMES                6.16   6.00   5.85   5.63   5.38
  TOTAL HOUSING STOCK     16.39  16.09  15.80  15.50  15.21


WATER HEATING
SATURATION (%)
  EXISTING HOMES           7.93   7.78   7.65   7.50   7.35
  NEW HOMES                4.31   4.20   4.10   3.95   3.78
  TOTAL HOUSING STOCK      7.83   7.69   7.56   7.41   7.26


COOKING
SATURATION (%)
  EXISTING HOMES           4.26   4.31   4.35   4.36   4.36
  NEW HOMES                6.25   6.22   6.17   5.78   5.37
  TOTAL HOUSING STOCK      4.31   4.36   4.40   4.40   4.38


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES            .91    .92    .93    .93    .93
  NEW HOMES                1.37   1.41   1.44   1.35   1.26
  TOTAL HOUSING STODR       .92    .93    .94    .94    .94


RESIDENTIAL
CUSTOMERS                 40.81  41.17  41.53  41.85  42.16

HOUSEHOLDS               218516 221925 22538[illegible] 228903 232474
(TEN-THOUSANDS)

AVERAGE ANNUAL GROWTH RATE OF RESIDENTIAL CUSTOMERS, 1981-2000:    1.12%
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#37 -- ADDABBO - HEINZ SCENARIO                                                                              FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR WEST VA.

                                                          ANNUAL SALES, SUPPLY AND PRICE OF GAS

                            GAS SALES                                                                       AVERAGE GAS PRICE
             ----------------------------------------------                                 ----------------------------------      DEMAND
                                          INDUSTRIAL                            ANNUAL                   COMMERCIAL                  WEIGHTED
                                             AND          TOTAL        GAS      SUPPLY                      AND                      AVERAGE
 YEAR    RESIDENTIAL  COMMERCIAL  ALL OTHER      SALES       SUPPLY    DEFICIT   RESIDENTIAL  ALL OTHER   INDUSTRIAL      PRICE
 ----    ----------   ----------  ----------   ----------   ----------  ----------  ----------   ----------   ----------   ----------
         --------------------( BCF )--------------------   (  BCF )   (  BCF )   ---------------($/MMBTU IN $1981)---------------
 1981       48.49        22.43       52.16       123.08          .00        .00       4.12         3.66         3.45         3.75
 1982       45.75        21.33       42.93       110.01          .00        .00       4.68         4.22         4.01         4.33
 1983       45.53        20.92       41.56       108.02          .00        .00       4.81         4.35         4.14         4.46
 1984       46.68        20.82       41.20       108.70          .00        .00       4.75         4.29         4.08         4.41
 1985       48.67        20.98       41.86       111.50          .00        .00       4.59         4.13         3.92         4.25
 1986       49.46        20.89       43.13       113.48          .00        .00       4.60         4.14         3.93         4.26
 1987       49.12        20.42       43.85       113.38          .00        .00       4.83         4.37         4.16         4.49
 1988       47.95        19.65       43.87       111.47          .00        .00       5.24         4.78         4.57         4.90
 1989       46.82        18.86       43.47       109.15          .00        .00       5.69         5.23         5.02         5.34
 1990       46.37        18.24       42.89       107.50          .00        .00       6.02         5.56         5.35         5.67
 1991       46.60        17.86       42.55       107.01          .00        .00       6.18         5.72         5.51         5.84
 1992       47.58        17.68       42.72       107.98          .00        .00       6.17         5.71         5.50         5.83
 1993       48.77        17.58       43.57       109.91          .00        .00       6.12         5.66         5.45         5.78
 1994       49.48        17.35       44.55       111.38          .00        .00       6.20         5.74         5.53         5.86
 1995       49.92        17.08       45.41       112.41          .00        .00       6.34         5.88         5.67         6.00
 1996       50.12        16.73       46.17       113.01          .00        .00       6.57         6.11         5.90         6.23
 1997       50.36        16.38       46.96       113.71          .00        .00       6.80         6.34         6.13         6.46
 1998       50.65        16.05       47.53       114.23          .00        .00       7.03         6.57         6.36         6.69
 1999       50.81        15.69       48.03       114.53          .00        .00       7.30         6.84         6.63         6.96
 2000       50.94        15.33       48.51       114.79          .00        .00       7.59         7.13         6.92         7.25


ANNUAL RATES OF GROWTH
---------------------

1981-1985    .89%       -1.65%      -5.35%      -2.44%        .00%       .00%      2.74%        3.07%        3.24%        3.18%
1985-1990   -.96%       -2.76%        .49%       -.73%        .00%       .00%      5.57%        6.13%        6.42%        5.94%
1990-1995   1.49%       -1.31%       1.15%        .90%        .00%       .00%      1.04%        1.13%        1.17%        1.12%
1995-2000    .41%       -2.14%       1.33%        .42%        .00%       .00%      3.66%        3.93%        4.06%        3.85%
---------
1981-2000    .26%       -1.98%       -.38%       -.37%        .00%       .00%      3.27%        3.57%        3.73%        3.52%
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#37 -- ADDABBO - HEINZ SCENARIO                                                                      FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR WEST VA.

                         1981   1982   1983   1984   1985   1986   1987   1988   1989   1990   1991   1992   1993   1994   1995
                         ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----

SPACE HEATING
SATURATION (%)
  EXISTING HOMES               57.89  57.32  56.83  56.56  56.27  55.89  55.31  54.59  53.89  53.28  52.88  52.58  52.24  51.89
  NEW HOMES                    45.27  39.17  41.77  46.60  48.99  46.51  40.70  35.05  32.11  31.94  34.36  37.49  38.62  38.82
  TOTAL HOUSING STOCK   58.65  57.46  56.70  56.31  56.22  56.10  55.67  54.95  54.12  53.36  52.82  52.49  52.26  51.95  51.61


WATER HEATING
SATURATION (%)
  EXISTING HOMES               50.82  50.18  50.19  50.62  50.63  50.04  48.96  47.78  46.86  46.30  46.20  46.25  46.05  45.74
  NEW HOMES                    42.91  37.28  39.84  44.52  46.88  44.56  39.08  33.79  31.07  30.95  33.28  36.30  37.41  37.65
  TOTAL HOUSING STOCK   53.01  50.54  49.73  49.84  50.41  50.54  49.93  48.72  47.44  46.48  45.98  45.93  46.04  45.87  45.57


COOKING
SATURATION (%)
  EXISTING HOMES               38.61  38.05  38.24  38.81  38.97  38.61  37.74  36.86  36.19  35.85  35.79  35.69  35.39  34.82
  NEW HOMES                    30.92  29.70  31.16  33.85  34.90  33.66  30.20  27.13  25.26  24.77  25.07  25.11  24.50  22.78
  TOTAL HOUSING STOCK   39.75  38.34  37.76  38.00  38.64  38.87  38.49  37.56  36.62  35.93  35.61  35.56  35.46  35.16  34.56


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES                5.72   5.94   6.36   6.86   7.24   7.36   7.33   7.30   7.33   7.45   7.65   7.84   7.94   7.94
  NEW HOMES                    14.10  13.81  14.05  14.66  14.96  14.91  14.10  13.47  12.97  12.82  12.59  11.98  11.41  10.23
  TOTAL HOUSING STODR    6.05   6.01   6.21   6.62   7.13   7.43   7.54   7.50   7.45   7.46   7.57   7.76   7.93   8.01   7.99


RESIDENTIAL
CUSTOMERS               37.46  37.29  37.72  38.66  39.91  40.55  40.79  40.65  40.45  40.40  40.50  40.84  41.24  41.48  41.59

HOUSEHOLDS              70322  72087  73896  75751  77653  78778  79921  81079  82255  83448  84408  85378  86360  87353  88358
(TEN-THOUSANDS)
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#37 -- ADDABBO - HEINZ SCENARIO                                                           FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR WEST VA.

                          1996   1997   1998   1999   2000
                          ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----


SPACE HEATING
SATURATION (%)
  EXISTING HOMES         51.48  51.07  50.66  50.22  49.77
  NEW HOMES              37.96  37.23  36.61  35.58  34.43
  TOTAL HOUSING STOCK    51.19  50.78  50.36  49.91  49.45


WATER HEATING
SATURATION (%)
  EXISTING HOMES         45.26  44.79  44.34  43.83  43.30
  NEW HOMES              36.87  36.21  35.67  34.72  33.66
  TOTAL HOUSING STOCK    45.08  44.61  44.16  43.64  43.09


COOKING
SATURATION (%)
  EXISTING HOMES         34.32  33.82  33.32  32.74  32.14
  NEW HOMES              21.68  20.65  19.67  18.48  17.28
  TOTAL HOUSING STOCK    34.05  33.54  33.03  32.44  31.82


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES          7.92   7.90   7.87   7.81   7.73
  NEW HOMES               9.80   9.38   8.95   8.44   7.92
  TOTAL HOUSING STODR     7.96   7.93   7.89   7.82   7.74


RESIDENTIAL
CUSTOMERS                41.66  41.72  41.79  41.80  41.78

HOUSEHOLDS               89374  90402  91441  92493  93557
(TEN-THOUSANDS)

AVERAGE ANNUAL GROWTH RATE OF RESIDENTIAL CUSTOMERS, 1981-2000:    .58%
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#37 -- ADDABBO - HEINZ SCENARIO   FRI, MAY 13, 1983, 3:37 PM

GAS DEMAND MODEL FOR WISCONS.

ANNUAL SALES, SUPPLY AND PRICE OF GAS

	GAS SALES						AVERAGE GAS PRICE			
YEAR	RESIDENTIAL	COMMERCIAL	INDUSTRIAL AND ALL OTHER	TOTAL SALES	GAS SUPPLY	ANNUAL SUPPLY DEFICIT	RESIDENTIAL	COMMERCIAL AND ALL OTHER	INDUSTRIAL	DEMAND WEIGHTED AVERAGE PRICE
	(BCF)				(BCF)	(BCF)	($/MMBTU IN $1981)			
1981	111.72	78.76	119.70	310.18	.00	.00	4.68	4.16	3.76	4.19
1982	106.19	75.38	99.17	280.74	.00	.00	5.24	4.72	4.32	4.70
1983	105.75	74.10	95.70	275.55	.00	.00	5.37	4.85	4.45	4.91
1984	108.25	73.83	94.63	276.71	.00	.00	5.31	4.79	4.39	4.86
1985	112.43	74.44	95.96	282.83	.00	.00	5.15	4.63	4.23	4.70
1986	114.53	74.28	98.73	287.53	.00	.00	5.16	4.64	4.24	4.71
1987	114.45	72.90	100.18	287.52	.00	.00	5.39	4.87	4.47	4.94
1988	112.52	70.54	100.03	283.10	.00	.00	5.80	5.28	4.88	5.35
1989	110.58	68.04	98.97	277.59	.00	.00	6.25	5.73	5.33	5.79
1990	109.79	66.10	97.55	273.44	.00	.00	6.58	6.06	5.66	6.13
1991	110.34	64.90	96.67	271.92	.00	.00	6.74	6.22	5.82	6.29
1992	112.59	64.42	96.98	274.00	.00	.00	6.73	6.21	5.81	6.28
1993	114.95	64.19	98.87	278.00	.00	.00	6.68	6.16	5.76	6.23
1994	117.04	63.58	101.05	281.66	.00	.00	6.76	6.24	5.84	6.31
1995	117.86	62.78	102.96	283.60	.00	.00	6.90	6.38	5.98	6.45
1996	118.82	61.73	104.66	285.21	.00	.00	7.13	6.61	6.21	6.68
1997	119.21	60.69	106.37	286.27	.00	.00	7.36	6.84	6.44	6.91
1998	120.32	59.70	107.72	287.74	.00	.00	7.59	7.07	6.67	7.14
1999	120.53	58.61	108.74	287.89	.00	.00	7.86	7.34	6.94	7.41
2000	121.24	57.51	109.80	288.55	.00	.00	8.15	7.63	7.23	7.70

ANNUAL RATES OF GROWTH

1981-1985	.16%	-1.40%	-5.38%	-2.28%	.00%	.00%	2.42%	2.71%	2.99%	2.90%
1985-1990	-.47%	-2.35%	.33%	-.67%	.00%	.00%	5.02%	5.53%	6.00%	5.44%
1990-1995	1.43%	-1.02%	1.08%	.73%	.00%	.00%	.95%	1.03%	1.11%	1.04%
1995-2000	.57%	-1.74%	1.30%	.35%	.00%	.00%	3.39%	3.64%	3.87%	3.59%
1981-2000	.43%	-1.64%	-.45%	-.38%	.00%	.00%	2.96%	3.24%	3.50%	3.25%

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#37 -- ADDABBO - HEINZ SCENARIO                                                              FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR WISCONS.

                            1981    1982    1983    1984    1985    1986    1987    1988    1989    1990    1991    1992    1993    1994    1995
                            ----    ----    ----    ----    ----    ----    ----    ----    ----    ----    ----    ----    ----    ----    ----

SPACE HEATING
SATURATION (%)
  EXISTING HOMES                   57.44   57.11   56.89   56.87   56.79   56.56   56.12   55.54   54.95   54.43   54.13   53.92   53.67   53.42
  NEW HOMES                        50.19   44.04   47.97   53.00   55.12   52.01   47.39   41.00   38.06   38.70   41.10   44.16   45.25   45.45
  TOTAL HOUSING STOCK      58.12   57.22   56.75   56.62   56.75   56.75   56.46   55.80   55.17   54.52   54.00   53.83   53.69   53.40   53.24


WATER HEATING
SATURATION (%)
  EXISTING HOMES                   52.04   51.71   52.04   52.74   52.94   52.51   51.61   50.50   49.79   49.34   49.32   49.47   49.37   49.16
  NEW HOMES                        50.43   45.45   48.60   53.60   55.62   53.46   48.29   43.01   40.13   40.01   42.39   45.40   46.50   46.74
  TOTAL HOUSING STOCK      54.00   51.99   51.52   51.93   52.77   53.01   52.54   51.52   50.30   49.53   49.12   49.17   49.30   49.30   49.11


COOKING
SATURATION (%)
  EXISTING HOMES                   33.15   32.09   33.35   34.02   34.11   33.91   33.24   32.61   31.90   31.60   31.75   31.33   31.56   30.77
  NEW HOMES                        27.10   26.73   29.02   31.94   32.28   31.55   28.57   26.24   23.97   23.47   24.25   22.54   24.31   20.86
  TOTAL HOUSING STOCK      33.05   32.97   32.71   33.22   33.96   34.06   33.85   33.12   32.44   31.76   31.50   31.50   31.13   31.40   30.54


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES                   13.32   13.14   13.45   13.89   13.91   13.71   13.27   12.87   12.54   12.41   12.50   12.30   12.40   12.13
  NEW HOMES                         9.06    9.12    9.75   10.39   10.27   10.44    9.06    9.63    8.00    8.71    8.06    7.37    8.35    6.40
  TOTAL HOUSING STODR      13.96   13.20   13.02   13.34   13.78   13.81   13.62   13.10   12.78   12.44   12.33   12.41   12.27   12.39   12.00


RESIDENTIAL
CUSTOMERS                  97.65   97.59   98.89  101.35  104.39  106.36  107.62  108.06  108.37  109.03  109.52  110.05  111.92  113.40  113.87

HOUSEHOLDS                168554  171975  175466  179020  182663  185823  189037  192308  195635  199019  201606  204227  206882  209572  212296
(TEN-THOUSANDS)
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037 -- ADDABBO - HEINZ SCENARIO                                                  FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR WISCONS.

                          1996   1997   1998   1999   2000
                          ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----


SPACE HEATING
SATURATION (%)
  EXISTING HOMES         53.11  52.79  52.48  52.13  51.77
  NEW HOMES              44.64  43.95  43.35  42.33  41.19
  TOTAL HOUSING STOCK    52.92  52.59  52.27  51.91  51.53


WATER HEATING
SATURATION (%)
  EXISTING HOMES         48.70  48.41  48.05  47.63  47.10
  NEW HOMES              45.99  45.35  44.81  43.86  42.70
  TOTAL HOUSING STOCK    48.72  48.34  47.98  47.55  47.00


COOKING
SATURATION (%)
  EXISTING HOMES         30.77  30.04  29.99  29.21  29.01
  NEW HOMES              21.06  19.21  20.06  17.41  17.72
  TOTAL HOUSING STOCK    30.57  29.79  29.77  28.94  28.76


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES         12.08  11.74  11.67  11.31  11.18
  NEW HOMES               7.24   5.96   6.66   5.41   5.86
  TOTAL HOUSING STODR    11.97  11.61  11.56  11.18  11.06


RESIDENTIAL
CUSTOMERS               114.92 115.30 116.32 116.59 117.37

HOUSEHOLDS              215056 217852 220684 223553 226459
(TEN-THOUSANDS)

AVERAGE ANNUAL GROWTH RATE OF RESIDENTIAL CUSTOMERS, 1981-2000:     .97%
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UNITED DISTRIBUTION COMPANIES

Responses to Written Questions From
Senate Energy Committee
re
Natural Gas Legislation

April 8, 1983

I. RESPONSE TO QUESTIONS FROM VARIOUS REPUBLICAN MEMBERS OF THE COMMITTEE.

1. Please provide the Committee with the specific legislative language necessary to implement those changes to the Administration's Bill, S.615, that you identified in your oral and written testimony as being necessary. Also please provide the Committee a justification for each of your recommended changes.

UDC Response

For the reasons set forth in its statement of March 11, 1983, as presented at the Committee's hearing, UDC opposes the decontrol of old gas as proposed by the Administration Bill, the contract revision processes stemming from that decontrol and the consumer protection provisions of the Bill, the latter on the ground that the same are inadequate.

For reasons set forth in said statement, UDC proposes very different legislative action critical to the establishment of a sound natural gas market. These are:

(a) an immediate reduction and new trending of NGPA ceiling prices;

(b) essential changes in take-or-pay provisions in producer-pipeline contracts;

(c) essential changes in price redetermination mechanisms in producer-pipeline contracts; and

(d) establishment of pipeline rate forms which will allow the ultimate market to determine prices for natural gas in the field.

The Administration Bill is fatally flawed; and we believe the principles reflected in Senator Kassebaum's Bill come much closer to addressing and curing the problems plaguing the natural gas industry.

2. Please provide the Committee with your estimate of the amount by which gas prices would increase or decrease, both over the short-run and over the long-run if S.615 is enacted.

UDC Response:

Each pipeline will be differently affected depending on the mix of its supplies. But despite these differences, UDC estimates that if S.615 is enacted prices will increase over the short term to the maximum extent permitted by Title I of the Bill and that upon the expiration of that Title on January 1, 1986, prices will, in all probability, increase dramatically.

All this will occur despite the fact that, in the face of declining costs of competitive fuels, distribution utility service desperately needs immediate relief from price increases.

UDC is gathering estimates from its various Members; and, when the same are completed, we will furnish them to the Committee. By way of illustration, however, UDC calls attention to the testimony submitted to the Committee on March 12th by Natural Gas Pipeline Company of America to the effect that, if S.615 were enacted, Natural's annual cost of domestic gas would increase 25 to 50% or $500 million to $1 billion per year. UDC Member Companies supplied by Natural Gas Pipeline could reasonably expect these increased costs to be passed on directly to them.

It must be emphasized that the so-called consumer protection proposed in Title I of S.615 contemplates a steady increase in prices between now and January 1, 1986, and expires on that date. The PGA's resulting from many new contracts would not be filed until 1986; and at most, the Administration's limitation on pass-through would simply defer recovery of a portion of the gas costs and allow their accumulation with interest in FERC Acct. 191 - portending a major rate surcharge in 1986 to recover these deferred costs.

3. Please provide the Committee with your estimate of the amount by which gas supplies and gas reserves would increase or decrease, both over the short-run and over the long-run, if S.615 is enacted.

UDC Response:

If S.615 is enacted, gas supplies and gas reserves will decrease, because more money will be paid for existing old gas and, in consequence, less money can be paid for future exploration and development. UDC cannot estimate the amount of the decrease; but, since huge amounts of money would be shifted into payments for old gas, it is believed that the decrease would be substantial.

4. Please provide the Committee with your estimate of the level of the gas cap if S.615 were enacted today and the amount by which the cap would reduce average purchased gas costs.

UDC Response:

If S.615 were enacted today, the gas cap would be determined by the way in which pipelines negotiate new contracts in the bedlam of new contractual arrangements precipitated by the Bill. What the price would be, one has no way of knowing, but instead of effecting a reduction in average purchased gas costs, as contemplated by the question, the prices would undoubtedly increase average gas purchased costs, -- because the so-called consumer protection provisions in Title I of the Bill envision and permit costs to increase. It may be expected that new pipeline contracts would track this maximum allowable.

5. Some witnesses appearing before the Committee have suggested that enactment of S.615 would bring about chaos in the gas market. Please provide the Committee with your assessment of the prospect of that occurring.

UDC Response:

Enactment of the Bill could bring about chaos in the gas market.

Producers would have the right to terminate contracts and withhold essential supplies from the market, thereby jeopardizing and disrupting utility service.

Tremendous increases in price would occur as pipelines struggle to negotiate new contractual arrangements in the face of these terminations.

Furthermore, following expiration of all proposed consumer protection provisions on January 1, 1986, unrestrained price increases and contractual burdens can completely disrupt utility service, with disastrous consequences to consumers. So, too, the transportation provision of S.615 can disrupt utility service, by encouraging unlimited access of industrial users to direct purchase of gas in the field.

II. RESPONSES TO QUESTIONS FROM DEMOCRATIC MEMBERS OF THE COMMITTEE.

1. What is your best estimate of what the new maximum lawful price for natural gas will be if the fuel cap provision in S.615 is adopted?

UDC Response:

If S.615 were enacted today, the gas cap would be determined by the way in which pipelines negotiate new contracts in the bedlam of new contractual arrangements precipitated by the Bill. What the price would be, one has no way of knowing, but instead of effecting a reduction in average purchased gas costs, as contemplated by the question, the prices would undoubtedly increase average gas purchased costs, -- because the so-called consumer protection provisions in Title I of the Bill envision and permit costs to increase. It may be expected that new pipeline contracts would track this maximum allowable.

2. What would that price be if only new contracts, and not renegotiated contracts, are included?

UDC Response:

The results would probably be the same as those stated in response to Question No. 1 above.

3. If S.615 were adopted, what is your best estimate of how it would affect residential prices paid each year for the next five years? How would that compare with prices under the NGPA for the next five years?

UDC Response:

Title I permits average purchased gas costs of each pipeline to rise steadily in accordance with the inflation adjustment factors therein set forth; and any pipeline is permitted to seek still further increases.

Since increases in average purchased gas costs of pipeline supplies are in turn, reflected in utility rates, it can be expected that residential rates will steadily rise more or less in accordance with the increase in average purchased gas costs, though this will vary from utility to utility depending on the mix of supplies.

In addition, further increases in residential rates would be precipitated as industrial and commercial loads are lost. Rates already exceed market clearing levels in most areas; and each further increase in gas prices will precipitate further contractions in consumer demand. This will be exacerbated by further weakening of oil prices.

#37 -- ADDABBO - HEINZ SCENARIO FRI, MAY 13, 1983, 3:37 PM

GAS DEMAND MODEL FOR WYOMING

ANNUAL SALES, SUPPLY AND PRICE OF GAS

	GAS SALES						AVERAGE GAS PRICE			
YEAR	RESIDENTIAL	COMMERCIAL	INDUSTRIAL AND ALL OTHER	TOTAL SALES	GAS SUPPLY	ANNUAL SUPPLY DEFICIT	RESIDENTIAL	COMMERCIAL AND ALL OTHER	INDUSTRIAL	DEMAND WEIGHTED AVERAGE PRICE
	(BCF)				(BCF)	(BCF)	($/MMBTU IN $1981)			
1981	16.74	9.10	29.76	55.60	.00	.00	3.37	3.04	2.75	2.98
1982	16.07	8.60	25.37	50.04	.00	.00	3.93	3.60	3.31	3.56
1983	16.31	8.44	24.16	48.90	.00	.00	4.06	3.73	3.44	3.70
1984	17.05	8.42	23.59	49.05	.00	.00	4.00	3.67	3.38	3.65
1985	18.13	8.52	23.74	50.38	.00	.00	3.84	3.51	3.22	3.49
1986	18.56	8.49	24.30	51.35	.00	.00	3.85	3.52	3.23	3.50
1987	18.43	8.27	24.43	51.14	.00	.00	4.08	3.75	3.46	3.73
1988	17.99	7.93	24.13	50.04	.00	.00	4.49	4.16	3.87	4.14
1989	17.49	7.57	23.53	48.59	.00	.00	4.94	4.61	4.32	4.59
1990	17.29	7.30	22.87	47.47	.00	.00	5.27	4.94	4.65	4.92
1991	17.27	7.14	22.39	46.80	.00	.00	5.43	5.10	4.81	5.08
1992	17.57	7.06	22.18	46.81	.00	.00	5.42	5.09	4.80	5.08
1993	17.96	7.01	22.38	47.35	.00	.00	5.37	5.04	4.75	5.03
1994	18.14	6.91	22.67	47.73	.00	.00	5.45	5.12	4.83	5.11
1995	18.23	6.79	22.92	47.94	.00	.00	5.59	5.26	4.97	5.25
1996	18.19	6.63	23.15	47.97	.00	.00	5.82	5.49	5.20	5.48
1997	18.16	6.47	23.37	48.01	.00	.00	6.05	5.72	5.43	5.70
1998	18.15	6.32	23.51	47.98	.00	.00	6.28	5.95	5.66	5.93
1999	18.08	6.16	23.61	47.85	.00	.00	6.55	6.22	5.93	6.20
2000	18.00	6.00	23.70	47.70	.00	.00	6.84	6.51	6.22	6.49

ANNUAL RATES OF GROWTH

1981-1985	2.02%	-1.64%	-5.49%	-2.43%	.00%	.00%	3.32%	3.66%	4.02%	4.01%
1985-1990	-.94%	-3.02%	-.74%	-1.19%	.00%	.00%	6.54%	7.07%	7.63%	7.10%
1990-1995	1.06%	-1.46%	.04%	.20%	.00%	.00%	1.19%	1.26%	1.34%	1.29%
1995-2000	-.25%	-2.44%	.67%	-.10%	.00%	.00%	4.12%	4.36%	4.59%	4.35%
1981-2000	.38%	-2.17%	-1.19%	-.80%	.00%	.00%	3.80%	4.09%	4.39%	4.17%

#37 -- ADDABBO - HEINZ SCENARIO

FRI, MAY 13, 1983, 3:37 PM

GAS DEMAND MODEL FOR WYOMING

	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
SPACE HEATING SATURATION (%)															
EXISTING HOMES		73.50	73.46	73.41	73.55	73.53	73.15	72.40	71.37	70.25	69.18	68.50	67.93	67.29	66.61
NEW HOMES		70.30	71.05	71.14	73.35	73.79	69.54	61.24	52.26	46.33	44.67	46.30	48.72	48.63	47.43
TOTAL HOUSING STOCK	74.69	73.77	73.33	73.28	73.53	73.54	73.02	71.98	70.66	69.35	68.46	67.84	67.37	66.75	66.04
WATER HEATING SATURATION (%)															
EXISTING HOMES		66.31	65.95	66.42	67.37	67.66	66.77	65.12	63.30	61.75	60.74	60.42	60.30	59.79	59.11
NEW HOMES		77.55	70.51	70.61	72.76	73.20	69.06	61.04	52.41	46.70	45.12	46.71	49.06	48.98	47.84
TOTAL HOUSING STOCK	69.81	66.93	66.20	66.65	67.66	67.87	66.85	64.97	62.89	61.19	60.28	60.01	59.97	59.47	58.77
COOKING SATURATION (%)															
EXISTING HOMES		30.52	29.88	30.02	30.68	31.24	30.82	30.36	29.52	29.13	28.70	28.62	28.54	28.28	27.82
NEW HOMES		25.96	24.61	26.75	30.83	33.82	31.11	29.28	25.26	24.55	23.26	23.43	23.53	22.87	21.29
TOTAL HOUSING STOCK	31.24	30.27	29.59	29.84	30.69	31.34	30.83	30.32	29.36	28.96	28.54	28.46	28.39	28.12	27.62
CLOTHES DRYING SATURATION (%)															
EXISTING HOMES		4.01	3.90	3.95	4.11	4.26	4.23	4.17	4.09	4.10	4.14	4.23	4.32	4.36	4.34
NEW HOMES		3.71	3.79	4.33	5.28	6.31	6.04	6.60	6.19	6.73	6.43	6.36	6.15	5.94	5.45
TOTAL HOUSING STODR	4.25	3.99	3.89	3.97	4.18	4.34	4.29	4.26	4.17	4.19	4.21	4.29	4.38	4.40	4.38
RESIDENTIAL CUSTOMERS	10.73	10.99	11.40	11.98	12.69	13.12	13.35	13.50	13.57	13.71	13.81	14.01	14.24	14.40	14.53
HOUSEHOLDS (TEN-THOUSANDS)	17394	18225	19096	20009	20965	21563	22177	22809	23459	24128	24611	25103	25605	26117	26639

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#37 -- ADDABBO - HEINZ SCENARIO                                                  FRI, MAY 13, 1983,  3:37 PM

GAS DEMAND MODEL FOR WYOMING

                          1996   1997   1998   1999   2000
                          ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----   ----


SPACE HEATING
SATURATION (%)
  EXISTING HOMES         65.81  64.98  64.12  63.19  62.22
  NEW HOMES              44.95  42.66  40.54  37.98  35.37
  TOTAL HOUSING STOCK    65.20  64.32  63.42  62.45  61.43


WATER HEATING
SATURATION (%)
  EXISTING HOMES         58.16  57.20  56.24  55.18  54.08
  NEW HOMES              45.46  43.25  41.21  38.74  36.21
  TOTAL HOUSING STOCK    57.78  56.79  55.80  54.70  53.55


COOKING
SATURATION (%)
  EXISTING HOMES         27.32  26.82  26.31  25.72  25.11
  NEW HOMES              19.92  18.63  17.48  16.10  14.75
  TOTAL HOUSING STOCK    27.11  26.58  26.05  25.44  24.80


CLOTHES DRYING
SATURATION (%)
  EXISTING HOMES          4.31   4.26   4.22   4.16   4.09
  NEW HOMES               5.23   5.00   4.80   4.52   4.25
  TOTAL HOUSING STODR     4.33   4.29   4.24   4.17   4.10


RESIDENTIAL
CUSTOMERS                14.62  14.70  14.78  14.83  14.87

HOUSEHOLDS               27172  27716  28270  28835  29412
(TEN-THOUSANDS)

AVERAGE ANNUAL GROWTH RATE OF RESIDENTIAL CUSTOMERS, 1981-2000:    1.73%
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Both the Administration Bill and NGPA contemplate steady inflation in prices at a time when prices should be declining. Neither the Administration Bill nor NGPA are economically sound or tolerable.

Congress must act to correct NGPA's pricing structure, and S.615 does not accomplish this goal.

4. Have you, or any of the consultants you work with, done any analysis of the supply response to the Administration's bill.
    a. Specifically, what would reserve additions look like for the next five years?
    b. What would the price for new supplies be, if old gas is deregulated, as compared to what the price would be if it remains regulated?

UDC Response:

As yet UDC has been unable to make any analysis of specific reserve additions if S.615 were enacted.

If old gas is deregulated, the price which can be paid for new supplies will be naturally less than that which can be paid if old gas remains regulated; and this will necessarily depreciate future exploration and development.

5. How soon would you expect the PGA passthrough limitation in S.615 would begin to be a problem for the pipelines?

UDC Response:

In general (while there may be exceptional circumstances) UDC believes that the PGA passthrough limitation will present only minor problems to interstate pipelines. It expires on January 1, 1986; and pipelines can readily avoid its temporary strictures by special contractual provisions which call for reduced field prices prior to that date and ballooning prices thereafter. Furthermore, recovery of deferred costs is permitted under current regulations, as explained in our answer to the next question.

6. If the passthrough limitation in S.615 were adopted, how would your members treat payments they are contractually obligated to pay, but which they could not recover?

UDC Response:

While this question is addressed to interstate pipeline witnesses, UDC understands the process to be as follows:

Under the present FERC regulations governing pipeline recovery of purchased gas costs, all interstate pipelines utilizing a PGA mechanism maintain a deferred, purchased gas cost account (Account 191) in which all unrecovered purchased gas costs are recorded. The pipelines are allowed to receive a carrying charge at the prime rate on the balance in this account. Recovery of these purchased gas costs is accomplished through semi-annual PGA rate changes.

If the pipeline is limited on passthrough of gas costs through the PGA rate mechanism, the balance in Account 191 would simply be carried forward with interest until such costs can be recovered after the passthrough limitation expires. In effect, gas costs in excess of those allowed to be passed through would be treated similarly to take-or-pay costs under present regulations -- pipelines must finance take-or-pay costs until the gas is taken and under S.615 pipelines would have to finance a portion of purchased gas costs until the passthrough limitation expires.

7. If old gas deregulation stays in the final bill, would you support it?

UDC Response:

No.

8. Please provide the Committee with specific statutory language for any amendments you would like to see adopted if the Committee were to use S.615 as a mark-up vehicle for natural gas legislation.

UDC Response

For the reasons set forth in its statement of March 11, 1983, as presented at the Committee's hearing, UDC opposes the decontrol of old gas as proposed by the Administration Bill, the contract revision processes stemming from that decontrol and the consumer protection provisions of the Bill, the latter on the ground that the same are inadequate.

For reasons set forth in said statement, UDC proposes very different legislative action critical to the establishment of a sound natural gas market. These are:

(a) an immediate reduction and new trending of NGPA ceiling prices;

(b) essential changes in take-or-pay provisions in producer-pipeline contracts;

(c) essential changes in price redetermination mechanisms in producer-pipeline contracts; and

(d) establishment of pipeline rate forms which will allow the ultimate market to determine prices for natural gas in the field.

The Administration Bill is fatally flawed; and we believe the principles reflected in Senator Kassebaum's Bill come much closer to addressing and curing the problems plaguing the natural gas industry.

9. If the amendments you support are not adopted, and if you had to vote up or down on S.615, would you support it or would you support a continuation of the existing law?

UDC Response

Enactment of S.615 and continuation of existing law would both contravene the public interest, for reasons set forth in UDC's statement of March 11, 1983. It is critical to the public interest that sound and constructive changes be made in existing law and UDC plans to work to this end.

10. Do you feel the authority to exercise a market-out should be extended to contracts between pipelines?

UDC Response:

UDC opposes the wholesale market-out concepts of S.615 for reasons set forth in our statement of March 11, 1983. Extending this concept to contracts between pipelines would precipitate further disruption of the industry, with potentially disastrous consequences to utility revenues and financing and, consequently, to utility service. Typical market-out provisions in use today are designed for private negotiations and would be cumbersome at best in the regulated pipeline environment. Instead, we call your attention to the recommendations which UDC made in its March 11 statement concerning pipeline rate design to achieve greater pipeline responsiveness to market forces.

In the Appendix to our statement, UDC explained that pipeline tariffs must embody the following characteristics: (1) generally, volumetric requirements imposed by a pipeline tariff must respect and be limited by the market requirements of utility service; (2) pipeline rates must be such that gas taken is marketable by distribution utilities; (3) pipeline tariffs must be designed to bring leverage on the pipeline to secure and manage its field supply in an economic, flexible, efficient and marketable fashion and be accountable to distribution utilities and ultimate users in this way; and (4) so long as the pipeline arranges its supply in sound fashion, it should recover its fixed and other costs of operating its pipeline facilities with risk of loss due to non-marketability placed upon the producer.

11. No question. No. 11 was omitted.

12. One of the basic objectives of the Administration bill is to create a "free market" for natural gas.

    a. How would you feel about creating a free market for pipelines and local distribution companies by deregulating them completely?

b. What if that deregulation were to occur as of January 1, 1986, so there would be a transition period, coupled with the option to abrogate your contracts, and then deregulation?

UDC Response:

If one assumes that a totally free market is readily and easily attainable, this is of course an appealing idea. But this would not be the case.

Deregulation of local distribution companies would, of course, be a matter of state law. But, aside from this fundamental problem, the deregulation of pipelines and local utilities would present questions of such far-reaching implications and concerns that years of debate and study would be essential to their resolution.

The critical problems now facing the industry cannot wait upon this process. Congress must deal effectively with the steady escalation of NGPA ceiling prices, for natural gas is pricing itself out of the market. It must deal effectively with problems caused by take-or-pay clauses and price redetermination clauses. These things cannot wait.

13. Do you support the equal access provisions advocated by the witness from the Independent Petroleum Association of Mountain States, or by the witness from the Coalition for Equal Access?

UDC Response:

No. UDC believes that if intrastate pipelines are to be granted access to those sources of supply available to interstate pipelines, the intrastate pipelines should be subject to the same regulatory restrictions imposed on interstate pipelines.

14. Do you agree that, from your vantage point, decontrol of old gas is the chief issue before us in S.615?

UDC Response:

Decontrol of old gas is a "chief" issue before Congress in S.615, but is is by no means the only major issue.

The "chief" problem with S.615 is that it fails to deal with those problems of the industry which are of immediate and momentous import.

It does not put a stop to the steady escalation of gas prices in the face of the fact that utility service can no longer tolerate those increases. Indeed, it condones and authorizes those increases in Title I.

It does not deal with fundamental contractual problems -- both take-or-pay and price redetermination -- which now plague the industry and will surely continue unless strong action is taken.

It does not take ncessary steps to ensure that the demand and price tolerances of utility service will effectively limit producer prices.

15. On page 17 of his prepared statement, Mr. McGrath foresees the Administration bill as leading to a dual market, the intrastate and the interstate market. Do all panelists agree? How, and how soon, would this happen?

UDC Response:

UDC agrees that there might be some slight tendancy toward a dual market, during the short life of the so-called consumer protection provisions of S.615. But those provisions expire on January 1, 1986; and, as new contracts can be tailored to this fact, we would expect this dual market effect to be minimal.

16. Do you believe that parties to direct sales contracts, as well as parties for first sale or sale for resale contracts, should be able to take advantage of the Administration's market-out provision? What about minimum bill contracts between pipelines, and contracts between pipelines and local distribution companies?

UDC Response:

If S.615 were to be enacted, the chaos in the natural gas market would in all probability be momentous, as we have explained above. Also if the Bill were enacted, distribution utilities would have to be provided with the safety net of comparable market-out rights and minimum bill relief.

17. Several panel members advocate repeal of fuel use restrictions in the Powerplant Industrial Fuel Use Act.

    a. What markets or users would you expect to serve if PIFUA is repealed?

    b. What price would you expect those users to pay?

    c. What volumes would you expect to sell to those new users?

    UDC Response:

    UDC has as yet made no appraisal of the new markets or users who could be served, the prices which could be charged or the volumes which could be sold.

18. Section 405 of S.615 makes the contract carrier authorization applicable only in a limited set of circumstances. In short, the pipeline previously carrying the gas would have to carry it for a new purchaser. Would you support expanding this requirement so that any pipeline, interstate or intrastate, could be required to carry gas for any other purchaser?

    UDC Response:

    No.

19. In simplest terms, the Administration's proposal attempts to keep gas prices flat between now and 1986 while old gas contracts are renegotiated. This will be accomplished by reducing new gas prices. How can anyone

explain to the public that this is a good idea when they know that the new gas sources are where we get our new production?

UDC Response:

The premises set forth in the first two sentences of the above question are erroneous, since the Bill would authorize steady price increases. But, even so, UDC believes that the explanation cannot be made.

20. What assurances are there that after 1/1/85 gas producers won't just unilaterally abandon old gas contracts and withhold supplies from the market until their price demands are met?

    a. Given the passthrough limitation, how could pipelines agree to these demands?

    b. How do you see this confrontation being resolved so as to keep needed supplies flowing?

UDC Response:

We take it that this question assumes S.615 will be adopted. If that happens, there is absolutely no assurance that producers will not abandon contracts and withhold supplies. Under S.615 producers of old gas would have complete freedom to do just that.

In response to sub-questions (a) and (b), UDC believes pipelines might agree to inordinate demands of producers of old gas by securing more lenient terms during the period of PGA limitation prior to January 1, 1986 in exchange for harsher terms following that date. This might keep needed supplies flowing but it would occasion irreparable public harm down through the years.

21. Could you discuss the gamesmanship or the psychology that would likely occur under S.615 if a producer comes to the pipeline with which he has a contract on the day after enactment of S.615 and says, "Let's agree to an insignificant amendment to our contract as that will constitute a renegotiation and deregulate us from price controls and non-price regulation, although the significant aspects of our contract will remain in effect." How is a pipeline likely to react to that offer?

UDC Response:

The mere possibility that such a proposal might be offered and accepted illustrates the fundamental fallacy of the Administration approach. The critical problems now besetting the public must be settled through positive means in which "gamesmanship" can play no part. Protection of utility service deserves something better than this.

22. Several panel members discussed the fact that gas prices are nearing and in some cases exceeding #6 oil prices in several markets. What is the best, most reliable, up to date source of data to turn to for prices paid for both

gas and #6 and #2 oil in various cities or regions for the industrial markets? Please summarize this data for the Committee.

UDC Response:

Each distributor keeps full and up-to-date data on gas rates and competitive fuel prices.

23. Testimony before the Committee has suggested that enactment of the Administration proposal would lead to a dual market for natural gas, similar to the one we experienced in the early 1970's, which led to the enactment of the NGPA.

a. Do you agree?

b. Please identify those features of the Administration bill which tend to create a dual market.

c. Should this be a major concern?

d. Please quantify the extent to which this might happen.

UDC Response:

UDC agrees that there might be some slight tendancy toward a dual market, during the short life of the so-called consumer protection provisions of S.615. But those provisions expire on January 1, 1986; and, as new contracts can be tailored to this fact, we would expect this dual market effect to be minimal.

III. QUESTION FOR MR. COOPER

Please provide the Committee with a breakdown for each of your member companies of distribution costs since the NGPA was enacted, and projections through 1985. Please show the rate of increase for each major cost component in distribution costs for those years for each of these companies.

UDC Response:

The requested data is being prepared and will be submitted as soon as possible.

In general, distribution costs have increased less than the rate of inflation.

Distribution costs are a very small percentage of the total retail gas bill - in most cases less than 20%.

C. WILLIAM COOPER
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(617) 540-0330

April 25, 1983

Mr. Howard S. Useem
Senate Committee on Energy and
Natural Resources
United States Senate
Dirksen Senate Office Building
Washington, D.C. 20510

Re: Natural Gas Legislation

Dear Mr. Useem:

On April 8, 1983, you received United Distribution Companies' responses to the questions submitted by the Majority and Minority Staffs of the Committee. Since those responses were submitted, UDC has prepared specific legislative language which it believes is necessary to implement critical changes to the Administration Bill S.615. In response to Majority question No. 1 and Minority question No. 8, the legislative language is shown on the right hand side of the enclosed side-by-side comparison to S.615. In accordance with our earlier response you will note that our amendments draw heavily upon Senator Kassebaum's bill.

If you have any questions concerning UDC's proposed amendments please do not hesitate to contact Dick Merriman at 828-0100, Pat Markey at 822-9288 or me at 617-540-0330.

Sincerely,

William Cooper

C. William Cooper

CWC:lg
Enclosure

cc: Richard M. Merriman
Patricia E. Markey

98th CONGRESS
1st Session

S. 615

To cover deficiencies in the Natural Gas Policy Act of 1978, to protect natural gas consumers from price increases because of current distortions in the regulated market for natural gas, to provide for a free market for natural gas, to permit natural gas contracts to reflect the change from a regulated to a free market, to eliminate incremental pricing requirements for natural gas, to eliminate certain fuel use restrictions, and for other purposes.

IN THE SENATE OF THE UNITED STATES

February 28 (legislative day, February 22), 1983

Mr. McClure introduced the following bill; which was read twice and referred to the Committee on Energy and Natural Resources

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A BILL

To cover deficiencies in the Natural Gas Policy Act of 1978, to protect natural gas consumers from price increases because of current distortions in the regulated market for natural gas, to provide for a free market for natural gas, to permit natural gas contracts to reflect the change from a regulated to a free market, to eliminate incremental pricing requirements for natural gas, to eliminate certain fuel use restrictions, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That this Act may be cited as the "Natural Gas Consumer Regulatory Reform Amendments of 1983".

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TITLE I—PURCHASED GAS COST

Sec. 101. Purchased gas cost.

TITLE II—REMOVAL OF WELLHEAD PRICE CONTROLS AND REPEAL OF JURISDICTION OVER CERTAIN FIRST SALES

Sec. 201. Removal of wellhead price controls.
Sec. 202. Repeal of Natural Gas Act jurisdiction over first sales of committed or dedicated natural gas.
Sec. 203. Repeal of provisions allowing reimposition of price controls and report to Congress.

TITLE III—TRANSITIONAL PRICE AND CONTRACT PROVISIONS

Sec. 301. Limitation on ceiling prices for natural gas.
Sec. 302. Repeal of certain contract requirements and imposition of take-or-pay limits.
Sec. 303. Market-out provision.
Sec. 304. Effect of gas cap price.

TITLE IV—REMOVAL OF IMPEDIMENTS TO INTERSTATE MOVEMENTS OF GAS

Sec. 401. Authorization of certain interstate sales, transportation, and assignments.
Sec. 402. Access to interstate supply sources.
Sec. 403. Contract carrier authorization.

TITLE V—REPEAL OF CERTAIN RESTRICTIONS ON NATURAL GAS AND PETROLEUM USE AND PRICING

Sec. 501. Repeal of certain sections of the Powerplant and Industrial Fuel Use Act of 1978.
Sec. 502. Conforming amendments.
Sec. 503. Repeal of incremental pricing requirements.

TITLE I—PURCHASED GAS COST

PURCHASED GAS COST

SEC. 101. (a) Title VI of the Natural Gas Policy Act of 1978 (15 U.S.C. 3431 et seq.) is amended by adding a new section 603 to read as follows:

"SEC. 603. LIMITATION ON THE PASSTHROUGH OF CERTAIN PURCHASED GAS COSTS.

"(a) LIMITATION ON PURCHASED GAS ADJUSTMENTS.—Notwithstanding section 601(c) of this Act, for pur-

~~poses of sections 4 and 5 of the Natural Gas Act, from the first day of the first month following enactment of the Natural Gas Consumer Regulatory Reform Amendments of 1983 through December 31, 1985, the part of a pipeline's rate that reflects purchased gas costs may not exceed its allowed rate for purchased gas cost, except as provided in subsection (b).~~

~~"(b) RECOVERY OF ADDITIONAL PURCHASED GAS COST.—A pipeline may file an application under this subsection with the Commission to increase its rates to reflect any purchased gas cost that subsection (a) of this section prevents it from recovering. Notwithstanding section 4(e) of the Natural Gas Act, no increase in the rates of a pipeline that may be recovered under this subsection may go into effect unless the Commission, after opportunity for hearing, issues an order that grants the application, in whole or in part, with such modifications and upon such terms and conditions as the Commission may find necessary and appropriate. The proceeding under this subsection shall be conducted by the Commission separately from proceedings on other rate applications that are filed under section 4 of the Natural Gas Act. In any such proceeding, the Commission shall allow recovery if it determines that the costs sought to be recovered were just, reasonable, and prudently incurred. In making this determination, the Commission shall consider the reasonable availability of lower cost supplies to the pipeline and the necessity~~

SEC. 101. COMMISSION RATES AND RATE DESIGN.

Section 601 of the Natural Gas Policy Act of 1978 (15 U.S.C. 3431) is amended by adding at the end thereof the following new subsection:

"(d) RATE DESIGN RULEMAKING. --

"(1) RULEMAKING.-- Within 12 months after the date of the enactment of this section, the Commission shall undertake and complete a rulemaking proceeding to issue a statement of policy containing guidelines on cost allocation and rate design for interstate pipeline tariffs. Such standards shall be designed to assure that prices of natural gas purchased by interstate pipelines in first sales are sensitive to end-use market conditions and end-use market signals are effectively transmitted to pipelines and producers.

"(2) REPORT TO CONGRESS.-- Upon completion, the Commission shall submit a copy of such statement of policy to the Congress, accompanied by a full report explaining how the guidelines will achieve the stated objectives.

"(3) REVIEW.-- Within 12 months after completion of such rulemaking, the Commission shall review interstate pipeline tariffs under

~~of such costs for the pipeline to render adequate service to its existing customers. Within sixty days of the date of the enactment of the Natural Gas Consumer Regulatory Reform Amendments of 1983, the Commission shall prescribe rules for applications under this subsection. These rules shall facilitate expeditious decisions on these applications.~~

~~"(c) DEFINITIONS.—~~

~~"(1) ALLOWED RATE FOR PURCHASED GAS.—The term 'allowed rate for purchased gas' means, for a particular pipeline, for a particular month, the pipeline's average cost per million Btu's for purchased gas delivered to the pipeline during the month preceding the enactment of the Natural Gas Consumer Regulatory Reform Act of 1983 plus the adjustment amount for that particular month.~~

~~"(2) ADJUSTMENT AMOUNT.—The term 'adjustment amount' means, for a particular month, the difference between the national rate and the adjusted national rate for that particular month.~~

~~"(3) NATIONAL RATE.—The term 'national rate' means the national average cost per million Btu's for purchased gas delivered to all interstate pipelines during the month preceding the enactment of the Natural Gas Consumer Regulatory Reform Amendments of 1983.~~

Sections 4 and 5 of the Natural Gas Act to determine the applicability of such guidelines and require modification of those tariffs that are found to be unjust, unreasonable, unduly discriminatory or unduly preferential.

"(4) COORDINATION.-- The preceding provisions of this section shall not be construed or applied in any way which would limit the establishment or approval of pipeline rates or rate designs under which prices and supplies of new natural gas, high-cost natural gas, and similarly priced natural gas supplies will be subject to end-use market forces.

~~"(4) ADJUSTED NATIONAL RATE.—The term 'adjusted national rate' means—~~

~~"(A) for the month in which the Natural Gas Consumer Regulatory Reform Amendments of 1983 is enacted, the national rate multiplied by the annual inflation adjustment factor (as defined in section 101(a) of this Act) for that month; and~~

~~"(B) for any particular succeeding month, the adjusted national rate for the preceding month multiplied by the annual inflation factor (as defined in section 101(a) of this Act) for that particular month.~~

~~"(d) REPORTING REQUIREMENT.—By the fifth day following the enactment of the Natural Gas Consumer Regulatory Reform Amendments of 1983, each interstate pipeline shall report its average cost per million Btu's for purchased gas delivered to it during the month preceding the enactment of the Natural Gas Consumer Regulatory Reform Amendments of 1983 and the volume of purchased gas delivered to it during that month.~~

~~"(e) PUBLICATION.—The Commission shall compute and publish the adjustment amount for each month at least five days before the beginning of that month.~~

~~"(f) AFFILIATED PRODUCTION.—No interstate pipeline may recover any costs associated with its own production or~~

SEC. 102. LIMITATION ON GUARANTEED PASSTHROUGH.

(a) GENERAL RULE.-- Section 601(c)(2) of such Act (15 U.S.C. 3431(c)(2)) is amended by inserting after "the Commission determines" the following: "(i) that the pipeline has failed to adopt and follow practices which minimize amounts paid for purchases of natural gas consistent with sound operating practices and the development of assured long-term supplies, or (ii)".

(b) EFFECTIVE DATE.-- The amendment made by subsection (a) shall take effect on the date of the enactment of this Act and shall apply with respect to recovery of costs of natural gas delivered to pipelines on or after such date.

~~purchases from any affiliated producer to the extent such production or purchases were not reduced to a percentage of deliverability no higher than the percentage of deliverability to which the pipeline had exercised contemporaneously a contractual right to reduce its takes of less expensive gas.".~~

~~(b) The table of contents of the Natural Gas Policy Act of 1978 (15 U.S.C. 3301 note) is amended by inserting after the item relating to section 602 the following:~~

~~"Sec. 603. Purchased Gas Cost."~~

~~TITLE II—REMOVAL OF WELLHEAD PRICE CONTROLS AND REPEAL OF JURISDICTION OVER CERTAIN FIRST SALES~~

~~REMOVAL OF WELLHEAD PRICE CONTROLS~~

~~SEC. 201. Section 121 of the Natural Gas Policy Act of 1978 (15 U.S.C. 3331) is amended to read as follows:~~

~~"SEC. 121. ELIMINATION OF PRICE CONTROLS FOR CERTAIN NATURAL GAS SALES.~~

~~"(a) GENERAL RULE.—The provisions of subtitle A respecting the maximum lawful price for any first sale of natural gas shall cease to apply to any first sale of natural gas subject to any contract that was executed or amended after the date of enactment of the Natural Gas Consumer Regulatory Reform Amendments of 1983, unless the contract specifically provides that the contract shall not operate to terminate the application of subtitle A.~~

TITLE II—WELLHEAD PRICE PROVISIONS

SEC. 201. CEILING PRICES TO BE BASED ON AUGUST 1983 PRICES WITH LIMITED ADJUSTMENTS FOR INFLATION.

(a) MODIFIED PRICE ADJUSTMENT FACTOR.—Section 101(a) of such Act (15 U.S.C. 3311(a)), relating to annual inflation adjustment factor, is amended by adding at the end thereof the following new paragraph:

"(4) MODIFIED PRICE ADJUSTMENT FACTOR.—

"(A) IN GENERAL.—For purposes of this title, the modified price adjustment factor applicable for any month shall be the lower of—

"(i) 75 percent of the cumulative changes in the GNP implicit price deflator (as defined in paragraph (2)) since the month beginning on the effective date of the Natural Gas Consumer Relief Act; or

"(ii) the cumulative percent change in the energy index, computed and published as an annual rate by the Department of Labor, from the month beginning on the effective date of the Natural Gas Consumer Relief Act through the most recent month for which such percent change has been so published at least 8 days before the beginning of the month for which the modified price adjustment is being calculated.

~~"(b) HIGH-COST NATURAL GAS.—Except as provided in subsection (a) of this section, with respect to the first sale of high-cost natural gas which is described in section 107(c)(1), (2), (3), or (4)—~~

~~"(1) beginning on the effective date of the incremental pricing rule required under section 201, the provisions of subtitle A respecting the maximum lawful price for the first sale of natural gas shall cease to apply; and~~

~~"(2) beginning on the date of enactment of the Natural Gas Consumer Regulatory Reform Amendments of 1983 through December 31, 1985, the price shall not exceed the higher of the contract price on the date of the enactment of the Natural Gas Consumer Regulatory Reform Amendments of 1983 or the gas cap price, if published, for the month during which the gas is delivered.~~

~~"(c) SPECIAL RULE FOR CERTAIN GAS.—Except as provided in subsection (a), with respect to the first sale of gas covered by this subsection—~~

~~"(1) beginning January 1, 1985, the provision of subtitle A respecting the maximum lawful price shall cease to apply; and~~

"(B) ENERGY INDEX DEFINED.—For purposes of this paragraph, the term 'energy index' means the energy component of the Consumer Price Index (U.S. city average—all urban consumers), seasonally adjusted, as computed and published by the Department of Labor.".

(b) NEW NATURAL GAS AND NATURAL GAS PRODUCED FROM THE OUTER CONTINENTAL SHELF.—Section 102(b) of the Natural Gas Policy Act of 1978 (15 U.S.C. 3312(b)) is amended—

(1) by striking out "and" at the end of paragraph (1);

(2) in paragraph (2) by striking out "thereafter" and inserting in lieu thereof "after April 1977 and before the effective date of the Natural Gas Consumer Relief Act" and by striking out the period at the end of such paragraph and inserting "; and" in lieu thereof; and

(3) by adding after paragraph (2) the following new paragraph:

"(3)(A) in the case of the month beginning on the effective date of the Natural Gas Consumer Relief Act, the maximum lawful price, per million Btu's, prescribed under this subsection for August 1982; and

~~"(2) beginning January 1, 1985, through December 31, 1985, the price shall not exceed the gas cap price for the month during which the gas is delivered.~~

~~"(3) GAS COVERED BY THIS SUBSECTION.—This subsection applies to—~~

~~"(A) new natural gas (as defined in section 102(c));~~

~~"(B) natural gas produced from any new, onshore production well (as defined in section 103(c)), if such natural gas—~~

~~"(i) was not committed or dedicated to interstate commerce on April 20, 1977; and~~

~~"(ii) is produced from a completion location which is located at a depth of more than 5,000 feet; and~~

~~"(C) natural gas sold under an existing contract, any successor to an existing contract, or any rollover contract, if—~~

~~"(i) such natural gas was not committed or dedicated to interstate commerce on the day before the date of the enactment of this Act; and~~

~~"(ii) the price paid for the last deliveries of such natural gas occurring on December 31, 1984, or, if no deliveries occurred on~~

"(B) in the case of any month beginning after such effective date, the maximum lawful price prescribed under this subsection for August 1982 multiplied by the modified price adjustment factor applicable for such month.".

(c) NEW, ONSHORE PRODUCTION WELLS.—Section 103(b)(1) of such Act (15 U.S.C. 3313(b)(1)) is amended—

(1) by striking out "and" at the end of subparagraph (A);

(2) in subparagraph (B) by striking out "thereafter" and inserting in lieu thereof "after April 1977 and before the effective date of the Natural Gas Consumer Relief Act" and by striking out the period at the end of such subparagraph and inserting "; and" in lieu thereof; and

(3) by adding after subparagraph (B) the following new paragraph:

"(C)(i) in the case of the month beginning on the effective date of the Natural Gas Consumer Relief Act, the maximum lawful price, per million Btu's, prescribed under this paragraph for August 1982; and

"(ii) in the case of any month beginning after such effective date, the maximum lawful price prescribed under this paragraph for August 1982 multiplied by the modified price adjustment factor applicable for such month.”.

(d) NATURAL GAS DEDICATED TO INTERSTATE COMMERCE.—Section 104(b)(1)(A) is amended—

(1) by striking out “and” at the end of clause (i);

(2) in clause (ii) by striking out “thereafter” and inserting in lieu thereof “after April 1977 and before the effective date of the Natural Gas Consumer Relief Act” and by striking out “, or” at the end of such clause and inserting “; and” in lieu thereof; and

(3) by adding after clause (ii) the following new clause:

“(iii)(I) in the case of the month beginning on the effective date of the Natural Gas Consumer Relief Act, the maximum lawful price, per million Btu's, prescribed under this subparagraph for August 1982; and

“(II) in the case of any month beginning after such effective date, the maximum lawful price prescribed under this subparagraph for August 1982 multiplied by the modified price adjustment factor applicable for such month; or”.

(e) EXISTING INTRASTATE CONTRACTS.—Section 105(b)(2)(B) such Act (15 U.S.C. 3315(b)(2)(B)) is amended—

(1) by striking out "and" at the end of clause (i);

(2) in clause (ii) by striking out "thereafter" and inserting in lieu thereof "after April 1977 and before the effective date of the Natural Gas Consumer Relief Act" and by striking out the period at the end of such clause and inserting "; and" in lieu thereof;" and

(3) by adding after clause (ii) the following new clause:

"(iii)(I) in the case of the month beginning on the effective date of the Natural Gas Consumer Relief Act, the maximum lawful price, per million Btu's, prescribed under this subparagraph for August 1982; and

"(II) in the case of any month beginning after such effective date, the maximum lawful price prescribed under this subparagraph for August 1982 multiplied by the modified price adjustment factor applicable for such month.".

(f) INTERSTATE ROLLOVER CONTRACTS.—Section 106(a) of such Act (15 U.S.C. 3316(a)) is amended—

(1) in paragraphs (1) and (2), by striking out "and" at the end of subparagraph (A);

(2) in paragraphs (1)(B) and (2)(B), by striking out "thereafter" and inserting in lieu thereof "after April 1977 and before the effective date of the Natural Gas Consumer Relief Act";

(3) in paragraph (1), by striking out "or" at the end of subparagraph (B) and inserting "and" in lieu thereof; and

(4) in paragraph (2)(B), by striking out the period at the end of the first sentence of such subparagraph and inserting "; and" in lieu thereof and by having the sentence which follows thereafter begin at the margin as an undesignated paragraph without indentation;

(5) in paragraphs (1) and (2), by inserting immediately after subparagraph (B) the following new subparagraph:

"(C)(i) in the case of the month beginning on the effective date of the Natural Gas Consumer Relief Act, the maximum lawful price, per million Btu's, prescribed under this paragraph for August 1982; and

"(ii) in the case of any month beginning after such effective date, the maximum lawful price prescribed under this paragraph for August 1982 multiplied by the modified price adjustment factor applicable for such month."; and

(6) in paragraph (1)(C) (as added by paragraph (5)), by striking out the period at the end of clause (ii) and inserting "; or" in lieu thereof.

(g) INTRASTATE ROLLOVER CONTRACTS.—Section 105(b)(1) of such Act (15 U.S.C. 3315(b)(1)) is amended—

(1) in subparagraphs (A) and (B), by striking out "and" at the end of clause (i);

(2) in subparagraphs (A)(ii) and (B)(ii), by striking out "thereafter" and inserting in lieu thereof "after April 1977 and before the effective date of the Natural Gas Consumer Relief Act";

(3) in subparagraph (A), by striking out "or" at the end of clause (ii) and inserting "and" in lieu thereof;

(4) in subparagraph (B), by striking out the period at the end of clause (ii) and inserting "; and" in lieu thereof;

(5) in subparagraphs (A) and (B), by adding after clause (ii) the following new clause:

"(iii)(I) in the case of the month beginning on the effective date of the Natural Gas Consumer Relief Act, the maximum lawful price, per million

Btu's, prescribed under this paragraph for August 1982; and

"(II) in the case of any month beginning after such effective date, the maximum lawful price prescribed under this paragraph for August 1982 multiplied by the modified price adjustment factor applicable for such month."; and

(6) in subparagraph (A)(iii) (as added by paragraph (5)), by striking out the period at the end of subclause (II) and inserting "; or" in lieu thereof.

(h) STRIPPER WELL NATURAL GAS.—Section 108(a) of such Act (15 U.S.C. 3318(a)) is amended to read as follows:

(1) by striking out "and" at the end of paragraph (1);

(2) in paragraph (2) by striking out "thereafter" and inserting in lieu thereof "after April 1977 and before the effective date of the Natural Gas Consumer Relief Act" and by striking out the period at the end of such paragraph and inserting "; and" in lieu thereof; and

(3) by adding after paragraph (2) the following new paragraph:

"(3)(A) in the case of the month beginning on the effective date of the Natural Gas Consumer Relief Act, the maximum lawful price, per million Btu's, prescribed under this subsection for August 1982; and

"(B) in the case of any month beginning after such effective date, the maximum lawful price prescribed under this subsection for August 1982 multiplied by the modified price adjustment factor applicable for such month.".

(i) OTHER CATEGORIES OF NATURAL GAS.—Section 109(b)(1) of such Act (15 U.S.C. 3319(b)(1)) is amended—

(1) by striking out "and" at the end of subparagraph (A);

(2) in subparagraph (B) by striking out "thereafter" and inserting in lieu thereof "after April 1977 and before the effective date of the Natural Gas Consumer Relief Act" and by striking out the period at the end of such subparagraph and inserting "; and" in lieu thereof; and

(3) by adding after subparagraph (B) the following new subparagraph:

"(C)(i) in the case of the month beginning on the effective date of the Natural Gas Consumer Relief Act, the maximum lawful price, per million Btu's, prescribed under this subsection for August 1982; and "(ii) in the case of any month beginning after such effective date, the maximum lawful price prescribed under this subsection for August 1982 · multiplied by the · modified price adjustment factor applicable for such month.".

SEC. 202. ADJUSTED CEILING PRICE PERMITTED FOR WELLS DRILLED ON OR AFTER AUGUST 1, 1982, AND BEFORE ENACTMENT.

(a) GENERALLY.—The Natural Gas Policy Act of 1978 is amended by inserting after section 110 the following new section:

"SEC. 111. CEILING PRICE FOR CERTAIN NATURAL GAS WELLS DRILLED ON OR AFTER AUGUST 1, 1982.

"The Commission may, by order on the petition of any operating producer, prescribe a maximum lawful price, applicable to any first sale of natural gas produced by that operator from a well the surface drilling of which commenced on or after August 1, 1982, and before the date of the enactment of the Natural Gas Consumer Relief Act, if such price is—

"(1) higher than the maximum lawful price which would otherwise be applicable;

"(2) just and reasonable within the meaning of the Natural Gas Act; and

"(3) not higher than (A) the maximum lawful price applicable for such category of natural gas on the date the surface drilling of such well commenced in the case of the month following the enactment of the Natural Gas Consumer Relief Act and (B) in the case of any month thereafter, the maximum lawful price under this paragraph for August 1982 multiplied by the modified price adjustment factor applicable for such month.".

(b) CLERICAL AMENDMENT.—The table of contents of the Natural Gas Policy Act of 1978 is amended by inserting after the item relating to section 110 the following:

"Sec. 111. Ceiling price for certain natural gas wells drilled on or after August 1, 1983.".

SEC. 3. ELIMINATION OF COMMISSION AUTHORITY TO INCREASE CERTAIN CATEGORIES ABOVE STATUTORY MAXIMUM LAWFUL PRICE.

(a) ELIMINATION OF GENERAL AUTHORITY.—Effective March 1, 1983, section 104(b)(2), section 106(c), and section 109(b)(2) of the Natural Gas Policy Act of 1978 (15 U.S.C. 3314(b)(2), 3316(c), and 3319(b)(2)) are hereby repealed.

(b) TECHNICAL AND CONFORMING AMENDMENTS.—

(1) So much of section 104(b) of such Act (15 U.S.C. 3314(b)) as precedes subparagraph (A) of paragraph (1) is amended to read as follows:

"(b) MAXIMUM LAWFUL PRICE.—The maximum lawful price under this section for any month shall be the higher of—".

(2) Section 104(b) of such Act (as amended by the preceding provisions of this Act) is further amended by redesignating subparagraphs (A)(i), (A)(ii), (A)(iii),

(A)(iii)(I), (A)(iii)(II), and (B), as paragraphs (1)(A), (1)(B), (1)(C), (1)(C)(i), (1)(C)(ii), and (2), respectively.

(3) So much of section 109(b) of such Act (15 U.S.C. 3319(b)) as precedes subparagraph (A) of paragraph (1) is amended to read as follows:

"(b) MAXIMUM LAWFUL PRICE.—The maximum lawful price under this section for any month shall be the higher of—".

(4) Section 109(b) is further amended by redesignating subparagraphs (A), (B), (C)(i), and (C)(ii) as paragraphs (1), (2), (3)(A), and (3)(B), respectively.

SEC. 211. CEILING PRICES TO BE INCLUSIVE OF AMOUNTS FOR RECOVERY OF PRODUCTION RELATED COSTS.

(a) AMENDMENT TO SECTION 110.—Section 110 of the Natural Gas Policy Act of 1978 (15 U.S.C. 3320) is amended by redesignating subsections (a), (b), and (c) as subsections (b), (c), and (d), respectively, and by inserting before subsection (b) (as redesignated) the following new subsection:

"(a) GENERAL RULE.—Except as provided in subsection (b), the maximum lawful price applies with respect to the recovery of all costs and profits (whether recovered in cash, in-kind compensation, or other remuneration) associated with production and first sale delivery of marketable natural gas.".

(b) Transportation and Production Related Costs Separately Recoverable Only If Necessary to Permit Seller A Just and Reasonable Rate of Return.—Section 110(b) of such Act (as redesignated by subsection (a)) is amended in paragraph (2) by striking out ", by rule or order," and inserting in lieu thereof ", by order on the petition of a seller," and by inserting before the period the following: ", but only if and to the extent recovery is necessary for the petitioner to earn a just and reasonable return, as determined by the Commission under section 502(c)".

(c) Certain Exploration, Development, and Production Costs of Pre-1982 Wells Separately Recoverable If Necessary to Permit Seller A Just and Reasonable Rate of Return.—Section 110(b) of such Act (as redesignated and amended by this section) is further amended by adding at the end thereof the following new sentence: "In the case of a petition under paragraph (2) with respect to high-cost natural gas (as described in section 107(c)(1), (2), (3), (4), and (5)) from any well the surface drilling of which commenced before August 1, 1982, the costs which may be recoverable pursuant to such petition may include the costs of exploration, development, and production of such well (to the extent attributable to the high-cost natural gas) if necessary for the petitioner to earn a just and reasonable return, as determined by the Commission under section 502(a).".

(d) TECHNICAL AND CONFORMING AMENDMENTS.—

(1) Section 110(h) of such Act (as redesignated by subsection (a)) is amended by striking out "subsection (h)" both places it appears and inserting "subsection (e)" in lieu thereof.

(2) Section 110(c) of such Act (as redesignated by subsection (a)) is amended by striking out "subsection (a)(1)" and inserting "subsection (b)(1)" in lieu thereof.

~~such date, the price that would have been paid had deliveries occurred on such date is higher than $1 per million Btu's.~~

~~"(d) REMOVAL OF WELLHEAD PRICE CONTROLS ON ALL NATURAL GAS.—Except as provided in subsections (a), (b), or (c), beginning January 1, 1986, the provisions of subtitle A respecting maximum lawful price shall cease to apply to the first sale of any natural gas.".~~

~~REPEAL OF NATURAL GAS ACT JURISDICTION OVER FIRST SALES OF COMMITTED OR DEDICATED NATURAL GAS~~

~~SEC. 202. Section 601(a)(1)(B) of the Natural Gas Policy Act of 1978 (15 U.S.C. 3431(a)(1)(B)) is amended to read as follows:~~

~~"(B) COMMITTED OR DEDICATED NATURAL GAS.—Effective on January 1, 1985, for the purposes of section 1(b) of the Natural Gas Act, the provisions of such Act and the jurisdiction of the Commission shall not apply solely by reason of any first sale of natural gas which was committed or dedicated to interstate commerce as of the day before the date of enactment of this subsection. Effective on the date of enactment of the Natural Gas Consumer Regulatory Reform Amendments of 1983 through December 31, 1984, for the purposes of section 1(b) of the Natural Gas Act, the~~

SEC. 20~~3~~5 EXTENSION OF NATURAL GAS CONTROLS.

(a) EXTENSION OF PRICE CONTROLS.—Section 121 of such Act (15 U.S.C. 3331) is amended—

(1) in subsection (a), by striking out "January 1, 1985" and inserting in lieu thereof "January 1, 1987"; and

(2) in subsection (e), by striking out "July 1, 1987," and inserting in lieu thereof "July 1, 1989.".

~~provisions of such Act and the jurisdiction of the Commission under such Act shall not apply solely by reason of any first sale of natural gas which is committed or dedicated to interstate commerce as of the day before the date of enactment of this Act and which is—~~

~~"(i) high-cost natural gas (as defined in section 107(c) (1), (2), (3), or (4) of this Act);~~

~~"(ii) new natural gas (as defined in section 102(c) of this Act);~~

~~"(iii) natural gas produced from any new, onshore production well (as defined in section 103(c) of this Act);~~

~~"(iv) natural gas exempted from the operation of subtitle A of title I pursuant to section 121(a); or~~

~~"(v) natural gas that was subject to a contract that expired, lapsed, was terminated pursuant to its own terms, or was terminated pursuant to the provisions of section 316 of this Act.".~~

~~REPEAL OF PROVISIONS ALLOWING REIMPOSITION OF PRICE CONTROLS AND REPORT TO CONGRESS~~

~~SEC. 208. (a) Sections 122, 123, and 507 of the Natural Gas Policy Act of 1978 (15 U.S.C. 3332, 3333, and 3417) are repealed.~~

~~(b) The table of contents of the Natural Gas Policy Act of 1978 (15 U.S.C. 3301 note) is amended by striking the items relating to sections 122, 123, and 507.~~

SEC. 206. EFFECTIVE DATE.

Except as otherwise expressly provided, the amendments made by this title shall take effect on the first day of the first calendar month beginning more than 10 days after the date of the enactment of this Act. The amendments made by this section shall apply to deliveries occurring on or after the first day of such calendar month.

TITLE III—TRANSITIONAL PRICE AND CONTRACT PROVISIONS

~~LIMITATION ON CEILING PRICES FOR CERTAIN NATURAL GAS~~

~~SEC. 301. (a) Title I of the Natural Gas Policy Act of 1978 (15 U.S.C. 3311–3333) is amended by adding the following new section:~~

~~"SEC 111. LIMITATION ON CEILING PRICES FOR CERTAIN NATURAL GAS.~~

~~"(a) GENERAL RULE.—Except as provided in section 121 of this Act, beginning on the date of enactment of this section, the maximum lawful price of any first sale of natural gas subject to this subtitle shall not exceed the lower of the applicable price as calculated pursuant to sections 102 through 106, 108, and 109 or the gas cap price, if published, for the month during which the gas is delivered.~~

~~"(b) SPECIAL RULE FOR SECTION 107(c)(5) GAS.—Except as provided in section 121 of this Act, beginning on the date of the enactment of the Natural Gas Consumer Regulatory Reform Amendments of 1983, the maximum lawful price for gas described in subsection (c)(5) of section 107 of this Act shall be no higher than the maximum lawful price for such gas during the month in which the Natural Gas Consumer Regulatory Reform Amendments of 1983 are enacted.~~

~~"(c) DEFINITION OF GAS CAP PRICE.—The term 'gas cap price' means, for a particular month, the volume-weighted average price of natural gas that is estimated to be—~~

~~"(1) delivered during the second, third, and fourth months preceding that particular month; and~~

~~"(2) delivered during the first three months of deliveries under a contract filed under subsection (e) of this section.~~

~~"(d) CALCULATION AND PUBLICATION OF THE GAS CAP PRICE.—Beginning with the fourth month after enactment of the Natural Gas Consumer Regulatory Reform Amendments of 1983, the Commission (in accordance with section 101(a)(6) of this subtitle) shall compute and publish the gas cap price for each month through December 1985.~~

~~"(e) FILING REQUIREMENT.—A purchaser of natural gas subject to a first sale contract executed or amended on or after the date of the enactment of the Natural Gas Consumer~~

Regulatory Reform Amendments of 1983 shall file with the Commission within five days of the date on which the contract is executed or amended—

"(1) a summary of the contract and all ancillary agreements, including all pricing provisions;

"(2) the prices to be paid under the contract during the first three months of deliveries;

"(3) the estimated volumes (in millions of Btu's) to be delivered during the first year of the contract; and

"(4) any additional data required by the Commission.

This filing requirement does not apply in the case of an amendment of a contract for which data previously relating to price has been filed with the Commission under this subsection.

"(f) COMMISSION RULES.—Within thirty days of the enactment of the Natural Gas Consumer Regulatory Reform Amendments of 1983, the Commission shall issue rules to implement this section.".

(b) The table of contents of the Natural Gas Policy Act of 1978 (15 U.S.C. 3301 note) is amended by inserting after the item relating to section 110 the following:

"Sec. 111. Limitation on Ceiling Prices for Certain Natural Gas.".

(c) Section 101(b)(5) of the Natural Gas Policy Act of 1978 (15 U.S.C. 3311(b)(5)) is amended by striking the

~~period at the end and inserting the following: ", but in no event shall the operation of this paragraph be deemed to entitle any seller to collect a price in excess of that established pursuant to section 111.".~~

~~(d) Section 105(b)(3)(B) of the Natural Gas Policy Act of 1978 is amended by adding a new sentence at the end to read as follows: "This definition shall not include any clause which establishes the price for natural gas exempted from the operation of this subtitle pursuant to section 121(a).".~~

~~REPEAL OF CERTAIN CONTRACT REQUIREMENTS AND IMPOSITION OF TAKE-OR-PAY LIMITS~~

~~SEC. 302. (a) Section 315 of the Natural Gas Policy Act of 1978 (15 U.S.C. 3375) is repealed, and a new section 315 is inserted in its place to read as follows:~~

~~"SEC. 315. IMPOSITION OF TAKE-OR-PAY LIMITS.~~

~~"(a) GENERAL RULE.—In the case of any first sale contract in effect on the date of enactment of the Natural Gas Consumer Regulatory Reform Amendments of 1983, which has not been amended subsequent to the date of enactment, and which contains a clause requiring a purchaser to take delivery of, or if not taken, to pay for, volumes of gas in excess of 70 per centum of available deliverability from those wells included under a contract, the purchaser may exercise without obligation to pay for volumes not taken in excess of 70 per centum of well deliverability, a right not to accept~~

SEC. 301. TAKE-OR-PAY CLAUSES.

(a) GENERAL RULE.-- The Natural Gas Policy Act of 1978 (15 U.S.C. 3301 and following) is amended by inserting after section 315 the following new section:

"SEC. 316. TAKE-OR-PAY CLAUSES.

"(a) LIMITATION ON TAKE-OR-PAY CLAUSES.-- During the 3-year period beginning on the effective date of this section, any take-or-pay clause of any pipeline contract subject to this section is hereby declared to be against public policy and unenforceable--

"(1) to the extent it requires a pipeline to make any payment with respect to natural gas in excess of 50 percent of the daily deliverability permitted under the pipeline contract or 50 percent of the market allowable production permitted under state laws and regulations, whichever is lower; or

"(2) if such clause does not entitle a pipeline which makes a payment under such clause to take delivery of the natural gas involved during the 1-year period beginning on the date of payments (or during

~~delivery of any portion of the total volume which exceeds 70 per centum of well deliverability. This right applies only to deliveries under a contract from the date of enactment of the Natural Gas Consumer Regulatory Reform Amendments of 1983 through December 31, 1985.~~

~~"(b) NOTICE REQUIREMENT.—Any purchaser electing to reduce volumes purchased pursuant to this section must give the seller a minimum of thirty days written notice prior to the date of delivery of the natural gas involved.~~

~~"(c) RELEASE OF CONTRACTUAL OBLIGATIONS.—Upon receipt of the notice provided for in subsection (b), the seller shall have the right to terminate the contract with respect only to amounts not taken by reason of this section. If the seller elects to terminate the contract in accordance with this section, the purchaser shall tender to the seller full and unconditional release from all duties and obligations in contract or in law. The purchaser, if a transporter of natural gas, shall tender transportation in accordance with the provisions of section 316(d) of this Act.~~

~~"(d) DRAINAGE SITUATIONS.—The Commission, by rule or order, may determine that this section shall not apply to the extent the production of the volume for which delivery is required to be taken is necessary in order to prevent drainage and protect the correlative rights of the person producing the natural gas involved.~~

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such longer period as may be provided under the contract).

"(b) CONTRACTS SUBJECT TO SECTION.—This section shall apply to any pipeline contract for the first sale of any of the following categories of gas well gas.

"(1) NEW NATURAL GAS.—New natural gas (as defined in section 102(c)) and natural gas qualifying for new natural gas ceiling prices (as determined under section 102(d)).

"(2) NEW, ONSHORE PRODUCTION WELLS.—Natural gas produced from any new, onshore production well (as defined in section 103(c)).

"(3) HIGH-COST NATURAL GAS.—High-cost natural gas (as defined in section 107(c)(1), (2), (3), (4), and (5)).

"(c) DEFINITIONS.—For purposes of this section—

"(1) PIPELINE CONTRACT.—The term 'pipeline contract' means any contract for the first sale of natural gas to any interstate or intrastate pipeline.

"(2) TAKE-OR-PAY CLAUSE.—The term 'take-or-pay clause' means any contract provision which requires payment for the minimum quantity of natural gas contracted for under the contract in the event the

~~"(e) Casinghead Natural Gas.—This section shall not apply to casinghead natural gas.~~

~~"(f) Contracts Covering More Than One Category of Natural Gas.—For purposes of this section, any contract establishing two or more categories of natural gas for purposes of pricing the natural gas delivered under the contract shall be treated as separate contracts for each such category.".~~

~~(b) The table of contents of the Natural Gas Policy Act of 1978 (15 U.S.C. 3301 note) is amended by striking the item relating to section 315 and inserting in its place the following:~~

~~"Sec. 315. Imposition of Take-or-Pay Limits.".~~

pipeline fails to take delivery. Such term also includes any other contract clause which the Commission determines has the same effect.

"(3) GAS WELL GAS.-- The term 'gas well gas' means natural gas produced from a well classified as a gas well under the laws or rulings of the state regulatory authority having jurisdiction of production allowables of the well, and in the absence of such classification, such term shall mean gas which is not associated or blended with crude oil at the time of its production.

"(d) Coordination With Section 317.—Nothing in this section, or any contract clause which is not declared to be against public policy under this section, shall be construed to restrict the rights provided to pipelines by section 317 to refuse delivery of certain natural gas.".

(b) Clerical Amendment.—The table of contents for such Act is amended by adding after the item relating to section 315 the following new item:

"Sec. 316. Take-or-pay clauses.".

(c) Effective Date.—The amendment made by subsection (a) shall take effect on the first day of the first calendar month beginning more than 10 days after the date of the enactment of this Act, and shall apply with respect to contracts entered into before, on, or after the date of the enactment of this Act. Such amendment shall not affect any pipeline's rights under a take-or-pay clause with respect to any payments made under such clause before such effective date.

~~MARKET-OUT PROVISION~~

~~SEC. 303. (a) Title III of the Natural Gas Policy Act of 1978 (15 U.S.C. 3361-3375) is amended by adding a new section 316 to read as follows:~~

~~"SEC. 316. MARKET-OUT PROVISION.~~

~~"(a) GENERAL RULE.—Beginning January 1, 1985, either party to a contract for the first sale of natural gas which was in effect on the date of enactment of the Natural Gas Consumer Regulatory Reform Amendments of 1983 and which contract was not thereafter amended shall have the right to terminate the contract under the following conditions:~~

SEC. 302. RENEGOTIATION AND MARKET-OUT PROVISIONS.

(a) GENERAL RULE.—The Natural Gas Policy Act of 1978 (15 U.S.C. 3301 and following) is amended by inserting after section 316 (as added by section 101) the following new section:

"SEC. 317. RENEGOTIATION AND MARKET-OUT PROVISIONS.

"(a) RENEGOTIATION.-- In the case of any contract for the first sale to any interstate or intrastate pipeline of high-cost natural gas, as defined in Section 107(c), or any natural gas for which the maximum lawful price has ceased to apply pursuant to Section 121--

(1) either party shall have the unilateral right to terminate such contract in accordance with an approved renegotiation process; and

(2) all new and renegotiated contracts shall be deemed to contain an approved renegotiation process, whether or not explicitly stated.

"(b) APPROVED RENEGOTIATION PROCESS.-- The term 'approved renegotiation process' means any contractual provision or provisions that authorize or require the following actions with respect to any provision of a first sale contract--

~~"(1) the party wishing to terminate the contract must give notice to the other party between November 16, 1984, and November 15, 1985, and at least forty-five days in advance, that the contract is to be terminated;~~

~~"(2) the party giving notice of termination does not materially breach the contract at any time prior to the end of the notice period; and~~

~~"(3) the party giving notice of termination must offer to the other party a full and unconditional release from all future duties and obligations in contract or in law relating to the contract, which release is effective upon termination of the notice period.~~

~~"(b) EFFECT OF SECTION 315 REDUCTION.—A reduction of a take-or-pay obligation pursuant to section 315 of this Act shall not be considered an amendment for purposes of subsection (a) of this section.~~

~~"(c) OBLIGATIONS OF PARTIES UPON TERMINATION.—Neither party to a contract terminated pursuant to this section shall have an obligation to perform any act because of the contract on and after the effective date of the termination of the contract, except that a party that has received a good or service under the contract before the effective date of its termination shall have a duty to pay for that good or service as provided for in the contract and that a~~

(1) either party shall have the separate and unilateral right to require good faith renegotiation of the provisions at least once in every 12-month period;

(2) if after a period of 60 days (or such longer period as may be mutually agreed upon), the parties shall have failed to agree upon a revised or amended provision, either party may terminate the contract by giving 90 days' written notice to the other;

(3) if the said first sale contract is so terminated by either party, the seller may seek another pipeline purchaser for the subject gas; but the seller shall give written notice of such proposed new sale to the purchaser which has been a party to the terminated contract; and such prior purchasers shall have the right of first refusal to purchase the subject natural gas on the same terms and conditions as are so available to the seller, said right of first refusal to be exercised within thirty (30) days of receipt of said notice;

~~party that has received payment under the contract for a good or service that was not provided before the effective date of its termination shall have a duty to make restitution of the payment in cash or in kind in accordance with the contract.~~

~~"(d) TRANSPORTATION OBLIGATION.—~~

~~"(1) IN GENERAL.—In the event that a contract is terminated under this section, a pipeline that was a party to the terminated contract shall have an obligation to transport natural gas for a producer that was a party to the terminated contract. The obligation of the pipeline shall not exceed on an annual basis the largest volume delivered under the contract during any twelve consecutive months in the thirty-six months prior to its termination.~~

~~"(2) LIMITATION OF OBLIGATION.—The Commission, or in the case of an intrastate pipeline the State agency with jurisdiction over that pipeline, upon application by the pipeline and after opportunity for hearing, may order a limitation of the obligation of the pipeline under this subsection if compliance with the obligation would require construction of additional facilities or would impair the ability of the pipeline to render adequate service to its existing customers.~~

(4) if any first sale contract is so terminated and said right of first refusal is not exercised, the purchaser under the terminated contract shall, to the extent possible, arrange transportation of the supply to the new pipeline purchaser.

~~"(3) CONSIDERATION.—The consideration for any transportation provided under this subsection shall be $0.0[illegible] per million Btu's plus the cost of such transportation, as established by the appropriate State or Federal regulatory body, unless the Commission has established, by rule, a different rate as just compensation for such transportation. No amount of such consideration shall be required to be credited and flowed back to the customers of such pipeline.".~~

~~(b) The table of contents of the Natural Gas Policy Act of 1978 (15 U.S.C. 3301 note) is amended by inserting after the item relating to section 315 the following:~~

~~"Sec. 316. Market-Out Provision.".~~

~~EFFECT OF GAS CAP PRICE~~

~~SEC. 304. (a) Title III of the Natural Gas Policy Act of 1978 (15 U.S.C. 3301-3375) is amended by adding a new section 316 to read as follows:~~

~~"SEC. 316. EFFECT OF GAS CAP PRICE.~~

~~"(a) Price Escalator Clauses.—Except for natural gas described in section 107 of this Act, no price escalator clause may operate to establish a price for natural gas which is subject to the provisions of subtitle A respecting the maximum lawful price for the first sale of natural gas higher than the gas cap price. For purposes of this subsection, the term "price escalator clause" means any contract clause that provides for a periodic price increase, either on a fixed or indefi-~~

SEC. 303. INDEFINITE PRICE ESCALATORS.

(a) PROHIBITION OF CERTAIN INDEFINITE PRICE ESCALATOR CLAUSES.-- Section 313 of the Natural Gas Policy Act of 1978 (15 U.S.C. 3373) is amended to read as follows:

SEC. 313. INDEFINITE PRICE ESCALATOR CLAUSES.

"(a) GENERAL RULE.-- Any indefinite price escalator clause of any contract applicable to the first sale of natural gas for which the maximum lawful price has ceased to apply pursuant to Section 121, is hereby declared to be against public policy, void and unenforceable.

"(b) DEFINITION OF INDEFINITE PRICE ESCALATOR CLAUSES.--

(1) For purposes of this section, the term 'indefinite price escalator clause' means the following provisions of any contract:

(i) 'favored nation' clauses;

(ii) 'commodity' clauses;

(iii) 'inflation index' clauses;

(iv) 'imported gas price' clauses; and

(v) generally, any other clauses which cause the price of gas in the field to be equated to, or trended with, prices which do not reasonably reflect market values for first sales of natural gas or changes in that value.

~~tive basis, or that references other natural gas prices, federally imposed price ceilings, or prices of other commodities.~~

~~"(b) AREA RATE CLAUSES.—For purposes of an area rate clause, the gas cap is a Federally established rate or price. After December 31, 1985, the gas cap price for December 1985 is a federally established rate or price.".~~

~~(b) The table of contents of the Natural Gas Policy Act of 1978 (U.S.C. 3301 note) is amended by inserting after the item relating to section 317 the following:~~

~~"Sec. 318. Effect of Gas Cap Price.".~~

(2) the term 'favored nation' means any provision in a contract for the first sale of natural gas which determines the price paid under such contract by reference to the price paid under any other natural gas purchase contract or a specified number of natural gas purchase contracts;

(3) the term 'commodity' clause means any provision in a contract for the first sale of natural gas which determines the price paid under such contract by reference to a specified percentage of the price of another fuel, where the percentage price of such fuel is not representative of the retail value of gas utility service after deduction for pipeline and distribution costs;

(4) the term 'inflation index' clause means any provision in a contract for the first sale of natural gas which determines the price paid under such contract by reference to changes in the Consumer Price Index or any other general price indices that are not indicative of the retail market price for natural gas in the area where it will be consumed.

(5) the term 'imported gas price' means any provision in a contract for the first sale of natural gas which determines the price paid under such contract by reference to the price of foreign gas at the point of importation into the United States.

~~TITLE IV—REMOVAL OF IMPEDIMENTS TO INTERSTATE MOVEMENTS OF GAS~~

~~AUTHORIZATION OF CERTAIN INTERSTATE SALES, TRANSPORTATION AND ASSIGNMENTS~~

~~SEC. 401. (a) Section 311(a) of the Natural Gas Policy Act of 1978 (15 U.S.C. 3371(a)) is amended by—~~

~~(1) amending subparagraph (A) of paragraph (1) to read as follows:~~

~~"(A) IN GENERAL.—The Commission may, by rule or order, authorize any interstate pipeline to transport natural gas on behalf of any person.".~~

~~(2) inserting "AND LOCAL DISTRIBUTION COMPANIES" after "INTRASTATE PIPELINES" in the paragraph (2) heading;~~

~~(3) inserting in paragraph (2) "or local distribution company" after "intrastate pipeline";~~

~~(4) amending subparagraph (A) of paragraph (2) to read as follows:~~

~~"(A) IN GENERAL.—The Commission may, by rule or order, authorize any intrastate pipeline or local distribution company to transport natural gas on behalf of any person.".~~

Tech. amend

~~(5) in subparagraph (B)(ii) (I) and (II) of paragraph (2), inserting "or company" after "pipeline".~~

~~(b) Section 311(b) of the Natural Gas Policy Act of 1978 (15 U.S.C. 3371(b)) is amended by—~~

~~(1) amending paragraph (1) to read as follows:~~

~~"(1) IN GENERAL.—The Commission may, by rule or order, authorize any pipeline or local distribution company to sell natural gas to any pipeline or local distribution company.".~~

~~(2) amending paragraph (2) by—~~

~~(A) striking "MAXIMUM FAIR AND EQUITABLE PRICE" after the subparagraph designator "A" and inserting in its place "INTRASTATE PIPELINES AND LOCAL DISTRIBUTION COMPANIES";~~

~~(B) inserting "or local distribution company" following "pipeline" and "or local distribution company's" following "pipeline's" wherever they appear; and~~

~~(C) inserting "(including storage)" after "transportation" in clause (i) of subparagraph (B);~~

~~(D) adding a new subparagraph (D) to read as follows:~~

~~"(D) INTERSTATE PIPELINES.—The rates and charges of any interstate pipeline with respect to any sales authorized under subsection (b)(1)(A) shall be just and reasonable (within the meaning of the Natural Gas Act).";~~

~~(3) in paragraph (4), striking "pipeline's" and inserting in its place "seller's", and striking "INTRASTATE" in the heading and inserting in its place "EXISTING";~~

~~(4) in paragraphs (4)–(7), except for subparagraph (5)(a)(i), striking "intrastate pipeline" or "pipeline" wherever they appear and inserting in their place "seller";~~

~~(5) in paragraph (5)(A)(i), striking "interstate pipeline or local distribution" and inserting in its place "purchasing"; and~~

~~(6) adding a new paragraph (8) to read as follows:~~

~~"(8) DEFINITION OF SELLER.—For purposes of this subsection, the term 'seller' means any person that sells gas under paragraph (b)(1).".~~

(c) Section 312 of the Natural Gas Policy Act of 1978 (15 U.S.C. 3372) is amended—

(1) by amending subsection (a) to read as follows:

"(a) AUTHORIZATION OF ASSIGNMENTS.—The Commission may, by rule or order, authorize a pipeline or local distribution company to assign, without compensation, to any other pipeline or local distribution company, all or any portion of the assignor's right to receive surplus natural gas at any first sale, upon such terms and conditions as the Commission determines appropriate."; and

(2) by amending subsection (c) to read as follows:

"(c) SURPLUS NATURAL GAS.—For purposes of this section, the term 'surplus natural gas' means, with respect to any pipeline or local distribution company, any natural gas which exceeds the then current demands of such person for natural gas, as determined by—

"(1) the Commission, or

"(2) the State agency having regulatory jurisdiction over that person.".

ACCESS TO INTERSTATE SUPPLY SOURCES

SEC. 402. (a) Section 314 of the Natural Gas Policy Act of 1978 (15 U.S.C. 3374) is amended by—

(1) striking "first" in subsection (a), and

(2) amending subsection (b) to read as follows:

"(b) NATURAL GAS COVERED BY THIS ACT.—For purposes of subsection (a), the term 'natural gas covered by this Act' means—

"(1) for any first sale contract, natural gas—

"(A) which is not subject to the jurisdiction of the Commission under the Natural Gas Act by reason of section 601(a)(1) (A) or (B);

"(B) the sale in interstate commerce of which—

"(i) is authorized under section 302(a) or 311(b); or

"(ii) is pursuant to an assignment under section 312(a); or

"(C) the transportation in interstate commerce of which is—

"(i) pursuant to any order under section 302(c) or section 303 (b), (c), (d), or (h), or

"(ii) authorized by the Commission under section 311(a); or

"(2) for any contract, natural gas the sale or transportation of which under the contract is not in interstate commerce by reason of section 601(d) of this Act.".

~~(b) Section 601 of the Natural Gas Policy Act of 1978 (15 U.S.C. 3431) is amended by adding new subsections (d) and (e) to read as follows:~~

~~"(d) LIMITATION OF COMMISSION JURISDICTION OVER INTERSTATE TRANSACTIONS.—~~

~~"(1) GENERAL RULE.—No intrastate pipeline or local distribution company shall be subject to the jurisdiction of the Commission under the Natural Gas Act by reason of purchasing natural gas in a covered transaction.~~

~~"(2) SUBSEQUENT TRANSACTIONS.—Any transportation or sale of natural gas purchased in a covered transaction which occurs beyond the point at which such gas is received in the facilities of the purchaser in the covered transaction shall not be in interstate commerce (within the meaning of the Natural Gas Act) and shall not be subject to the jurisdiction of the Commission under the Natural Gas Act to the extent that such gas remains in the State of purchase.~~

~~"(3) NATURAL-GAS COMPANY.—For purposes of the Natural Gas Act, the term 'natural-gas company' (as defined in section 2(6) of that Act) shall not include any person by reason of, or with respect to, any transportation or sale of natural gas if the transportation or~~

sale is not subject to the jurisdiction of the Commission solely by reason of paragraph (2) of this subsection.

"(4) STATE OF PURCHASE RULE.—For purposes of this subsection, natural gas shall be deemed to remain in the State of purchase if the gas is not transported outside the State in which it was received into the facilities of the purchaser of the gas in a covered transaction, unless such transportation occurs in connection with—

"(A) transportation authorized under sections 302(a) or 311(a) of this Act, or

"(B) a sale or assignment authorized under sections 311(b) or 312 of this Act.

"(5) DEFINITION OF COVERED TRANSACTION.—For purposes of this subsection, the term 'covered transaction' means—

"(A) a first sale of gas—

"(i) which is not subject to the jurisdiction of the Commission under the Natural Gas Act by reason of subparagraph (A) or (B) of paragraph (1) of subsection (a),

"(ii) which is produced on the Outer Continental Shelf, or

~~"(iii) which is transported pursuant to an order issued under section 317 of this Act;~~

~~"(B) a sale or assignment authorized under section 302(a), 311(b), or 312(a) of this Act; or~~

~~"(C) a sale for resale by any person not subject to the jurisdiction of the Commission solely by reason of section 1(c) of the Natural Gas Act.~~

~~"(e) NONDISCRIMINATION PROVISION.—The Commission may not condition or deny any authorization of the sale or transportation of natural gas under this Act or the Natural Gas Act on the basis of whether the gas is consumed in the interstate market or the intrastate market.".~~

CONTRACT CARRIER AUTHORIZATION

SEC. 403. (a) Title III of the Natural Gas Policy Act of 1978 (15 U.S.C. 3361–3375) is amended by adding a new section 317 to read as follows:

"SEC. 317. CONTRACT CARRIER AUTHORIZATION.

"(a) IN GENERAL.—Upon application by a producer of natural gas or by a purchaser of natural gas from a producer, the Commission shall order any interstate pipeline to carry gas under contract between producer and purchaser upon such terms and subject to such conditions as it considers just and reasonable if the Commission finds that such pipeline has available capacity, that no undue will be place upon such

UDC is still studying this provision and the several amendments that have been offered.

pipeline, that no construction of new facilities would be required, and that such order would not impair the ability of such pipeline to render adequate service to its existing customers. The Commission may implement this section by rule or order.

"(b) CONSIDERATION.—The consideration for any transportation provided under this section shall be $.05 per million Btu's plus the cost of such transportation, as established by the Commission, unless the Commission has established, by rule, a different rate as just compensation for such transportation. No amount of such consideration shall be required to be credited and flowed back to the customers of such pipeline.".

(b) The table of contents of the Natural Gas Policy Act of 1978 (15 U.S.C. 3301 note) is amended by inserting after the item relating to section 316 the following:

"Sec. 317. Contract Carrier Authorization.".

TITLE V—REPEAL OF CERTAIN RESTRICTIONS ON NATURAL GAS AND PETROLEUM USE AND PRICING

REPEAL OF CERTAIN SECTIONS OF THE POWERPLANT AND INDUSTRIAL FUEL USE ACT OF 1978

SEC. 501. (a) The following sections of the Powerplant and Industrial Fuel Use Act of 1978 (42 U.S.C. 8301 et seq.) are repealed:

(1) section 102 (a)(16), (a)(18), (a)(19), and (a)(29)) (42 U.S.C. 8302 (a)(16), (a)(18), (a)(19), and (a)(29));

(2) sections 201 and 202 (42 U.S.C. 8311 and 8312);

(3) section 302 (42 U.S.C. 8342);

(4) section 401 (42 U.S.C. 8371);

(5) section 402 (42 U.S.C. 8372); and

(6) section 405 (42 U.S.C. 8375).

(b) The table of contents in section 101(b) of the Powerplant and Industrial Fuel Use Act of 1978 (42 U.S.C. 8301(b)) is amended by striking the items relating to the sections repealed by subsection (a) of this section.

CONFORMING AMENDMENTS

SEC. 502. (a) Section 102 of the Powerplant and Industrial Fuel Use Act of 1978 (42 U.S.C. 8301) is amended by striking "and major fuel-burning installations" and "and new" wherever these phrases appear.

(b) Section 103 of the Powerplant and Industrial Fuel Use Act of 1978 (42 U.S.C. 8302) is amended—

(1) in subsection (a)(13)(B), by—

(A) striking clause (ii)(III);

(B) striking "; or" at the end of clause (ii)(II), and inserting a period in its place; and

(C) inserting "and" at the end of clause (ii)(I);

(2) in subsection (a)(15), by striking "or major fuel-burning installation" and "or new" wherever these phrases appear;

(3) in subsection (a)(20), by striking "or major fuel-burning installation";

(4) by redesignating subsections (a)(17), (a)(20), (a)(21), (a)(22), (a)(23), (a)(24), (a)(25), (a)(26), (a)(27), and (a)(28) as subsections (a)(16), (a)(17), (a)(18), (a)(19), (a)(20), (a)(21), (a)(22), (a)(23), (a)(24), and (a)(25);

(5) in subsection (b), by striking "or major fuel-burning installation" wherever this phrase appears;

(6) in subsection (b)(1)(D), by striking everything after "synthetic gas involved" and inserting in its place a period; and

(7) by striking subsection (b)(3), and redesignating subsection (b)(4) as subsection (b)(3).

(c) Section 104 of the Powerplant and Industrial Fuel Use Act of 1978 (42 U.S.C. 8303) is amended to read as follows:

"The provisions of this Act shall apply in all the States, Puerto Rico, and the territories and possessions of the United States.".

(d) Section 303 of the Powerplant and Industrial Fuel Use Act of 1978 (42 U.S.C. 8343) is amended—

(1) by striking "or installation" and "or installations" wherever the phrases appear;

(2) by striking "or 302" wherever the phrase appears;

(3) by striking subsection (a)(3);

(4) by amending subsection (b)(1) to read as follows:

"(1) The Secretary may prohibit, by rule, the use of natural gas or petroleum under section 301(b) in existing electric powerplants.";

(5) in subsection (b)(3), by striking "or major fuel-burning installation"; and

(6) by amending the last sentence of subsection (b)(3) to read as follows: "Any such rules shall not apply in the case of any existing electric powerplant with respect to which a comparable prohibition was issued by order.".

(e) Section 403 of the Powerplant and Industrial Fuel Use Act of 1978 (42 U.S.C. 8373) is amended by striking—

(1) in subsection (a)(1), "major fuel-burning installation, or other unit" and the comma immediately preceding this phrase and "installation, or unit" and the comma immediately preceding this phrase;

(2) in subsection (a)(2), "installation, or other unit" and the comma immediately preceding that

MAR [illegible]

Howard

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March 21, 1983

SENATE COMMITTEE ON
ENERGY AND NATURAL RESOURCES
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MAR 25 1983
WASHINGTON, D.C. 20510

Official Committee File

Honorable James A. McClure, Chairman
Committee on Energy and Natural Resources
United States Senate - Room SD360
Washington, D. C. 20510

Attention: Mr. Howard Useem

Dear Howard:

In conformity with your memorandum of March 14, 1983, I am enclosing, where appropriate, responses of Walter Rodemann to the questions for Panel Three (March 11, 1983).

Yours very truly,

ROBERT B. LANGSTAFF

RBL:bp
Enclosure

cc: Mr. U. Walter Rodemann

UNITED STATES SENATE
COMMITTEE ON ENERGY AND NATURAL RESOURCES
JAMES A. McCLURE, CHAIRMAN

The following are responses of U. Walter Rodemann, General Manager, Water, Gas & Light Commission, Albany, Georgia - Witness, Panel Three (March 11, 1983)

RESPONSES TO WRITTEN QUESTIONS PROPOUNDED ON MARCH 14, 1983

1. Since the fuel cap provision is basically a function of time; that is, when the bill is actually passed, it will be difficult to estimate the maximum price. However, if the bill was adopted now, it would be my opinion that the maximum level would be somewhere in the vicinity of $3.20 per mcf.

2. Because of the number and variation of new contracts in existence, unknown to this witness, no meaningful response can be given.

3. It is my opinion that residentaial prices will tend to stabilize under S.615 or similar legislation for deregulation; whereas, it is obvious that under NGPA residential prices are going to continue to escalate.

4. (a) No. As an inuser or city gate customer, I am not directly involved with supply problems but it is my opinion that under a deregulation environment, exploration and production will tend to match demand in the market place.

   (b) Realizing that old gas somewhat will escalate in price, this competition in the producers market will tend to bring down prices of new supplies.

5. Administrative procedures with regard to PGA pass through will be an initial bottleneck and troublesome to the pipelines, but I feel that eventually this problem will level out.

6. Question No. 6 does not apply to this witness.

7. Yes.

8. It was obvious from my participation on Panel Three (March 11, 1983) that there is a great deal of difference of opinion concerning the final form of any gas deregulation bill. I have no specific statutory language suggestions but as I stated orally, it is imperative that Congress recognize the gas pricing problem as an immediate one and seek a solution in the short term.

9. I would support S.615.

10. Yes.

12. (a) I am in favor of complete deregulation. As stated orally at the hearing, the most critical period is right now because the industry, not knowing what the outcome of legislation is going to be, is paralyzed.

13. I support the statement by the Coalition for Equal Access.

14. Yes

15. Yes

16. Market out provisions as to inusers such as this witness are unrealistic and actually relate only to producer pipeline situations.

17. (a) I have the immediate prospect of serving the boiler fuel for power generation.

    (b) Competitive prices with alternative fuel supply.

    (c) Indeterminable but minimum requirements would probably be in the neighborhood of 1 BCF.

18. Yes

19. The heritage of free market conditions in our economy is explanation enough, but basically competition in the market price would tend to lower natural gas prices as soon as the remaining effects of PURPA which categorizes natural gas in several protective classes is eliminated.

20. If the current bill S.615 lacks in anything, it is in a more meaningful restriction on this problem. However, the highly competitive nature of alternate fuel supplies demand that gas producers come to grips with pricing elements.

21. I really don't know how a pipeline would react but obviously if the gamemanship of the industry were to frustrate the lower prices for the product, then in my opinion the ballgame is over and no legislation will be effective.

22. Currently in my market, No. 6 fuel oil is selling for \$4.20/MMBTU and No. 2 is selling for \$6.40/MMBTU. Users of both of these type fuels have access to natural gas at a retail cost of \$4.79/MMBTU. Consequently, it is quite obvious that No. 6 fuel oil is a more competitive price fuel than natural gas and any further escalation in gas prices and downturn in oil prices is going to compound this problem with No. 2.

23. Intrastate vs. interstate gas is not a problem in the state of Georgia because there are basically no intrastate gas sales. However, based on industry observations, it is my opinion that the unregulated part of the market will tend to have lower prices than the regulated part of the market.

Official Committee File

SENATE COMMITTEE ON
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INGAA RESPONSES TO WRITTEN QUESTIONS
SENATE ENERGY COMMITTEE HEARING
NATURAL GAS LEGISLATION
March 23, 1983

QUESTIONS FROM VARIOUS DEMOCRATIC MEMBERS OF THE COMMITTEE

1. What is your best estimate of what the new maximum lawful price for natural gas will be if the fuel cap provision in S. 615 is adopted?

A. We don't know. Under S. 615, the price cap would be based on the weighted average price of new-new gas contracts and renegotiated contracts, presumably including old gas, since these contracts would also be subject to renegotiation. There is little incentive under S. 615 for renegotiation of contracts, particularly for old gas, but also for 102 and 103 gas both of which will decontrolled 1/1/85 under the NGPA. Hence, it is impossible at this time to even guess what the maximum lawful price would be under this Bill.

2. What would that price be if only new contracts, and not renegotiated contracts, are included?

A. It is difficult to predict what it would be, but our best judgment is that new-new contracts would more likely reflect market conditions than if renegotiated contracts were included. Various estimates of the current market clearing wellhead price have been made — ranging from $2.52 per Mcf to $3.50 per Mcf depending on the market served and the source and location of the gas. It is INGAA's view that such a cap mechanism, i.e., the national weighted average of new-new contracts would be the best indication of market clearing and provide the best capping mechanism or cap price to control escalations - price.

3. If S. 615 were adopted, what is your best estimate of how it would affect residential prices paid each year for the next five years? How would that compare with prices under the NGPA for the next five years?

A. We cannot quantify this, but as a result of the market-out provisions, it is anticipated that at a minimum, those pipelines with a high percentage of system supply comprised of old gas, would have substantial increases in gas costs which would be reflected in the bills of residential users. Prices under the NGPA are already at or above market clearing levels and what with the many contracts containing IPE's, it is anticipated that there will be a substantial fly-up in price come 1/1/85 when much of the gas subject to these contracts is decontrolled. However, we are not in a position, at this time, to compare the impact on consumers under the NGPA with S. 615. If the PGA passthrough restriction of S. 615 were to go into effect, and pipelines prevented from recovering increased gas costs, consumers' bills may not increase, but the financial viability of the natural gas pipeline industry would be put in question and the possibility of supply shortfall enhanced.

phrase, and "installation, or unit" and the comma immediately preceding that phrase;

(3) in subsection (a)(2), the last sentence; and

(4) subsection (a)(5).

(f) Section 404 of the Powerplant and Industrial Fuel Use Act of 1978 (42 U.S.C. 8374) is amended by striking—

(1) in subsection (c), "new or" in the phrase "applicable to any new or existing electric powerplant"; and

(2) subsection (g).

(g) Section 701 of the Powerplant and Industrial Fuel Use Act of 1978 (42 U.S.C. 8411) is amended by striking—

(1) in the last sentence of subsection (b), "or installation";

(2) subsection (c);

(3) in the title of subsection (d), "AND EXEMPTIONS";

(4) in the first sentence of subsection (d)(1), "or any petition for any order granting an exemption (or permit)";

(5) in subsection (d)(1)(B), "or in the consideration of such petition";

(6) in subsection (f), "or a petition for an exemption (or permit) under this Act (other than under section 402 or 404),"; and

(7) subsection (g).

(h) Section 702 of the Powerplant and Industrial Fuel Use Act of 1978 (42 U.S.C. 8412) is amended by striking—

(1) in the title of subsection (a), "OR EXEMPTION";

(2) in subsection (a), "or granting an exemption (or permit)";

(3) subsection (b), and redesignating subsection (c) as subsection (b);

(4) in the first sentence of subsection (b)(1) (as redesignated), "or by the denial of a petition for an order granting an exemption (or permit) referred to in subsection (b),";

(5) in the first sentence of subsection (b)(1) (as redesignated), "such rule, order, or denial is published under subsection (a) or (b)" and inserting in its place "such rule, or order is published under subsection (a)";

(6) in the first sentence of subsection (b)(2) (as redesignated), "the rule, order, or denial" and inserting in its place "the rule or order";

(7) in the second sentence of subsection (b)(2) (as redesignated), "(or denial thereof)"; and

(8) in subsection (b)(3) (as redesignated), "any such rule, order, or denial" and inserting in its place "any such rule or order".

(i) Section 711 of the Powerplant and Industrial Fuel Use Act of 1978 (42 U.S.C. 8421) is amended by striking in the first sentence of subsection (a), "or major fuel-burning installation".

(j) Section 721 of the Powerplant and Industrial Fuel Use Act of 1978 (42 U.S.C. 8431) is amended by striking subsection (c) and redesignating subsection (d) as subsection (c).

(k) Section 723 of the Powerplant and Industrial Fuel Use Act of 1978 (42 U.S.C. 8433) is amended by striking subsection (b) and redesignating subsections (c) and (d) as subsections (b) and (c).

(l) Section 731 of the Powerplant and Industrial Fuel Use Act of 1978 (42 U.S.C. 8441) is amended by striking—

(1) "or major fuel-burning installation" wherever the phrase appears; and

(2) "title II or" in subsections (a)(1) and (g)(3).

(m) Section 745 of the Powerplant and Industrial Fuel Use Act of 1978 (42 U.S.C. 8455) is amended by striking in the first sentence of subsection (a), "from new and existing electric powerplants and major fuel-burning installations" and inserting in its place "from existing electric powerplants".

(n) Section 761 of the Powerplant and Industrial Fuel Use Act of 1978 (42 U.S.C. 8471) is amended by striking—

(1) in subsection (a), "any existing or new electric powerplant or major fuel-burning installation" and inserting in its place "any existing electric powerplant"; and

(2) in subsection (b)—

(A) "new or" in the phrase "In the case of any new or existing facility"; and

(B) "except to the extent provided under section 212(b) or section 312(b)" and the comma immediately preceding that phrase.

REPEAL OF INCREMENTAL PRICING REQUIREMENTS

SEC. 503. (a) Subject to subsections (b) and (c) of this section, title II of the Natural Gas Policy Act of 1978 (15 U.S.C. 3341–3348) is repealed, and the items relating to title II are stricken from the table of contents of that Act.

(b) A rule promulgated by the Commission under title II of the Natural Gas Policy Act of 1978 shall continue in effect only with respect to the flow-through of costs incurred before the enactment of the Natural Gas Consumer Regulatory Reform Amendments of 1983, including any surcharges based on such costs.

(c) The Commission may take appropriate action to implement this section.

○

4. Have you, or any of the consultants you work with, done any analysis of the supply response to the Administration's bill?

   a. Specifically, what would reserve additions look like for the next five years?

   b. What would the price for new supplies be, if old gas is deregulated, as compared to what the price would be if it remains regulated?

A. No, INGAA has not had the opportunity to do an analysis of the supply response to the Administration's bill. Should decontrol of new-new gas occur, it is our judgment that such action would serve to stimulate new drilling and exploration efforts and, hopefully, more gas to meet our long-term supply needs.

5. How soon would you expect the PGA passthrough limitation in S. 615 would begin to be a problem for the pipelines?

A. Immediately. See Attachment A to INGAA's testimony presented to the Committee March 11, 1983.

6. If the passthrough limitation in S. 615 were adopted, how would your members treat payments they are contractually obligated to pay, but which they could not recover?

A. Two possible actions immediately come to mind: one - the pipeline would have to eat the unrecovered costs (to its detriment and that of its stockholders) or two - it would abrogate the contract either by refusing to pay anything above the amount allowed by the Commission or cancel the contract altogether. In all likelihood, the seller would abrogate unless the pipeline could convince him otherwise. New contracts would have to contain a "FERC-out" if the purchaser is to be protected. As a result, this provision would jeopardize long-term contractual arrangements, both in existing contracts and in those yet to be entered into. The result would be but another instance wherein S. 615 would re-establish the dual market between interstate purchasers and intrastate purchasers. The intrastates, who are not subject to this restriction, would have a clear advantage which would inure to the detriment of the customers of interstate pipelines.

7. If old gas deregulation stays in the final bill, would you support it?

A. No. We are opposed to the deregulation of old gas as proposed in S. 615.

8. Please provide the Committee with specific statutory language for any amendments you would like to see adopted if the Committee were to use S. 615 as a mark-up vehicle for natural gas legislation.

A. Suggested amendments are presently under review and should be available next week.

9. If the amendments you support are not adopted and if you had to vote up or down on S. 615, would you support it or would you support a continuation of the existing law?

A. We cannot support S. 615 as proposed. Further, the NGPA must be changed in a comprehensive way to address take-or-pay, indefinite price escalation clauses, and market-out of Section 107 gas. Without language to implement such changes, we can neither support S. 615 nor a continuation of the NGPA as is.

10. Do you feel the authority to exercise a market-out should be extended to contracts between pipelines?

A. INGAA has not taken a position on this issue. We believe, however, that if the legislative changes recommended by INGAA were enacted, the contract problems between pipelines and producers would be relieved, and that possible downstream marketing difficulties, e.g., between pipelines, would not arise or, at least, be mitigated.

11. There was no question 11.

12. One of the basic objectives of the Administration Bill is to create a "free market" for natural gas.

a. How would you feel about creating a free market for pipelines and local distribution companies by deregulating them completely?

A. INGAA has perceived no significant interest among its membership in "deregulating" pipelines, at least up to the present time. We cannot speak for the distribution segment of the industry. INGAA has traditionally supported the ultimate decontrol of natural gas at the wellhead so that market forces can operate in establishing the price paid for that commodity. We supported passage of the NGPA. Our present concern is that the transition to decontrol be as smooth as possible. This cannot happen under either S. 615 as drafted, or the NGPA as is. That is why INGAA, on behalf of the pipeline industry, has made the suggestions it has for change in the NGPA and S. 615. We believe that for the time being, the Congress must address the smooth transition to the deregulation of wellhead pricing. To achieve this end, comprehensive changes are needed in the NGPA. The time for accomplishing these changes is short. Congress should not expand the scope of its inquiry more than necessary.

b. What if that deregulation were to occur as of January 1, 1986, so there would be a transition period, coupled with the option to abrogate your contracts, and then deregulation?

A. Any answer here would be too speculative to be helpful.

13. Do you support the equal access provisions advocated by the witness from the Independent Petroleum Association of Mountain States, or by the witness from the Coalition for Equal Access?

A. Neither. They are virtually identical.

14. Do you all agree that, from your vantage point, decontrol of old gas is the chief issue before us in S. 615?

A. No. The decontrol of old gas is a key issue but there are several issues of equal or greater importance. For example, the bill contains several proposals that would create new problems for the natural gas pipeline industry -- the PGA passthrough limitation as an alleged consumer protection clause, pipeline affiliate production, imposition of contract carriage and the related so-called "equal access" provisions. Furthermore, decontrol of new-new gas, the capping of indefinite price escalators, and the resolution of other contract problems, such as take-or-pay clauses, are also critically important to the resolution of the gas market problems.

16. Do you believe that parties to direct sales contracts, as well as parties for first sale or sale for resale contracts, should be able to take advantage of the Administration's market-out provision? What about minimum bill contracts between pipelines, and contracts between pipelines and local distribution companies?

A. The wholesale marketing out of contracts by pipelines, producers, distributors and end-users would result in chaos in the industry.

17. Several panel members advocate repeal of fuel use restrictions in the Powerplant Industrial Fuel Use Act.

a. What markets or users would you expect to serve if PIFUA is repealed?

A. It is hoped that with the repeal of those portions of the FUA which provide for restrictions on the use of natural gas that interstate pipelines could regain industrial markets and thereby provide for greater absorption of costs and lower costs to residential and small commercial users.

b. What price would you expect those users to pay?

A. Generally, the price should be comparable to that being paid for alternative fuels in the market.

c. What volumes would you expect to sell to those new users?

A. It is difficult to forecast how much additional gas could be sold as a result of repeal of the fuel use restrictions in the Fuel Use Act. Such an estimate is complicated by sharp decline in price of oil in recent months and not knowing what the price of gas will be.

18. Section 405 of S. 615 makes the contract carrier authorization applicable only in a limited set of circumstances. In short, the pipeline previously carrying the gas would have to carry it for a new purchaser. Would you support expanding this requirement so that any pipeline, interstate or intrastate, could be required to carry gas for any other purchaser?

A. No. We cannot support the contract carrier provisions to the extent they would empower the Commission to order transportation by a pipeline. We would obviously not support an expansion of this. Moreover, contract carriage implies two willing parties have entered into a contract for the transportation of gas under a certain tariff filed with the FERC. If the Commission orders such carriage based upon a complaint or petition, there cannot be two willing parties to a contract. Therefore, it is not contract carriage, but an hybrid common carriage. INGAA opposes common carrier status for interstate pipelines. We favor the encouragement, through economic incentives, of increased transportation by a contractual agreement where to do so will not inhibit the ability of the pipeline to serve its own customers.

19. In simplest terms, the Administration's proposal attempts to keep gas prices flat between now and 1986 while old gas contracts are renegotiated. This will be accomplished by reducing new gas prices. How can anyone explain to the public that this is a good idea when they know that the new gas sources are where we get our new production?

A. INGAA is opposed to the deregulation of old gas as proposed in the Administration bill. We do not see how the public could be advantaged by it at this time.

20. What assurances are there that after 1/1/85 gas producers won't just unilaterally abandon old gas contracts and withhold supplies from the market until their price demands are met?

A. If S. 615 is enacted in its present form, there would be no regulatory or statutory barriers to prevent a producer from withholding old gas from the market if the producer chose to do so. This is true because producers could elect to market-out old gas after January 1, 1985, and because the bill would repeal non-price wellhead regulations and no abandonment of service would have to be obtained under Section 7 of the NGA.

a. Given the passthrough limitation, how could pipelines agree to these demands?

A. The ability of interstate pipelines to agree to these demands would be severely limited.

b. How do you see this confrontation being resolved so as to keep needed supplies flowing?

A. This confrontation would not arise if old gas is not decontrolled as provided for in S. 615.

21. Could you discuss the gamesmanship or the psychology that would likely occur under S. 615 if a producer comes to the pipeline with which he has a contract on the day after enactment of S. 615 and says, "Let's agree to an insignificant amendment to our contract as that will constitute a renegotiation and deregulate us from price

controls and non-price regulation, although the significant aspects of our contract will remain in effect." How is a pipeline likely to react to that offer?

A. Pipelines would have nothing to gain by agreeing to such an amendment. While we do not envision such a scenario occurring, it would seem most likely that the pipelines would reject it out of hand.

22. Several panel members discussed the fact that gas prices are nearing and, in some cases, exceeding #6 oil prices in several markets. What is the best, most reliable, up-to-date source of data to turn to for prices paid for both gas and #6 and #2 oil in various cities or regions for the industrial market? Please summarize this data for the Committee.

A. Platt's Oilgram is considered to be the most reliable up-to-date source of data for prices paid for oil. The EIA Natural Gas Monthly has some pricing data, but these data do not deal with various cities or geographic regions.

23. Testimony before the Committee has suggested that enactment of the Administration proposal would lead to a dual market for natural gas, similar to the one we experienced in the early 1970's, which led to the enactment of the NGPA.

a. Do you agree?

A. Yes.

b. Please identify those features of the Administration bill which tend to create a dual market.

A. The passthrough provisions of S. 615 would place interstate pipelines at a severe disadvantage to intrastates in purchasing new supplies of gas since intrastates would not be subject to the same limitations. The market-out provisions coupled with the PGA limitations of Section 303 of S. 615 would give intrastates an unreasonable competitive advantage. In addition, Title IV of S. 615 - Removal of Impediments to Interstate Movements of Gas - would simply provide intrastates with all the benefits of being able to operate as interstates, both with respect to supply and markets, without being subject to the Federal regulatory constraints faced by interstates. This would clearly re-establish the dual market that existed prior to the NGPA. As I stated in my testimony, INGAA would not object to an expanded role for intrastate pipelines, but only on terms truly equal with interstate pipelines. Thus, if an intrastate wishes to buy and transport gas on the OCS or in a "foreign" state, it should be allowed to do so, but only through an affiliated corporate entity that would be a "natural gas company" within the meaning of the NGA and the NGPA. Gas received from this "interstate affiliate" for sale and consumption in the intrastate's state of operation would not subject it to Federal regulatory jurisdiction. We expect to have language available next week to accomplish these ends.

c. Should this be a major concern?

A. This is indeed a major concern to the interstate pipeline industry and should be to the Congress which worked to abolish the dual market in passing the NGPA in 1978.

d. Please quantify the extent to which this might happen.

A. There is no way to give an estimate at this time.

24. QUESTION FOR MR. MCGRATH.

Please provide the Committee with a pipeline by pipeline breakdown of gas transmission costs since the NGPA was enacted and the projections through 1985. Please show the rate of increase for each major cost component in transmission costs for those years for each of these pipelines.

A. Assuming the data could be obtained by INGAA, it is virtually impossible for us to respond in the short time period requested. To respond would require months of preparation and analysis. It is also our understanding that the GAO is attempting to develop similar information for a few selected case studies. This study began months ago.

QUESTIONS FROM VARIOUS REPUBLICAN MEMBERS OF THE COMMITTEE

1. Please provide the Committee with the specific legislative language necessary to implement those changes to the Administration's bill, S. 615, that you identified in your oral and written testimony as being necessary. Also please provide the Committee a justification for each of your recommended changes.

A. See response to Minority Question No. 8.

2. Please provide the Committee with your estimate of the amount by which gas prices would increase or decrease, both over the short-run and over the long-run if S. 615 is enacted.

A. See response to Minority Question Nos. 1-3.

3. Please provide the Committee with your estimate of the amount by which gas supplies and gas reserves would increase or decrease, both over the short-run and over the long-run, if S. 615 is enacted.

A. See response to Minority Question No. 4a.

4. Please provide the Committee with your estimate of the level of the gas cap if S. 615 were enacted today and the amount by which the cap would reduce average purchased gas costs.

A. See response to Minority Question Nos. 1 and 2.

5. Some witnesses appearing before the Committee have suggested that enactment of S. 615 would bring about chaos in the gas market. Please provide the Committee with your assessment of the prospect of that occurring.

A. INGAA is deeply concerned that enactment of S. 615 would indeed seriously disrupt natural gas markets. Our written testimony filed with the Committee addresses the impact of S. 615 in some detail. My answers to Minority Questions 6, 13, 18, 20 and 23 also reflect this potential impact.

II

98TH CONGRESS
1ST SESSION

S. 615

To cover deficiencies in the Natural Gas Policy Act of 1978, to protect natural gas consumers from price increases because of current distortions in the regulated market for natural gas, to provide for a free market for natural gas, to permit natural gas contracts to reflect the change from a regulated to a free market, to eliminate incremental pricing requirements for natural gas, to eliminate certain fuel use restrictions, and for other purposes.

IN THE SENATE OF THE UNITED STATES

FEBRUARY 28 (legislative day, FEBRUARY 22), 1983

Mr. McCLURE introduced the following bill; which was read twice and referred to the Committee on Energy and Natural Resources

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A BILL

To cover deficiencies in the Natural Gas Policy Act of 1978, to protect natural gas consumers from price increases because of current distortions in the regulated market for natural gas, to provide for a free market for natural gas, to permit natural gas contracts to reflect the change from a regulated to a free market, to eliminate incremental pricing requirements for natural gas, to eliminate certain fuel use restrictions, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That this Act may be cited as the "Natural Gas Consumer Regulatory Reform Amendments of 1983".

INGAA AMENDMENTS

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TITLE I—PURCHASED GAS COST

PURCHASED GAS COST

SEC. 101. (a) Title VI of the Natural Gas Policy Act of 1978 (15 U.S.C. 3431 et seq.) is amended by adding a new section 603 to read as follows:

"SEC. 603. LIMITATION ON THE PASSTHROUGH OF CERTAIN PURCHASED GAS COSTS.

"~~(a) LIMITATION ON PURCHASED GAS ADJUSTMENTS.—Notwithstanding section 601(c) of this Act, for pur-~~

SEE NEXT PAGE

~~poses of sections 4 and 5 of the Natural Gas Act, from the first day of the first month following enactment of the Natural Gas Consumer Regulatory Reform Amendments of 1983 through December 31, 1985, the part of a pipeline's rate that reflects purchased gas costs may not exceed its allowed rate for purchased gas cost, except as provided in subsection (b).~~

~~"(b) RECOVERY OF ADDITIONAL PURCHASED GAS COST.—A pipeline may file an application under this subsection with the Commission to increase its rates to reflect any purchased gas cost that subsection (a) of this section prevents it from recovering. Notwithstanding section 4(e) of the Natural Gas Act, no increase in the rates of a pipeline that may be recovered under this subsection may go into effect unless the Commission, after opportunity for hearing, issues an order that grants the application, in whole or in part, with such modifications and upon such terms and conditions as the Commission may find necessary and appropriate. The proceeding under this subsection shall be conducted by the Commission separately from proceedings on other rate applications that are filed under section 4 of the Natural Gas Act. In any such proceeding, the Commission shall allow recovery if it determines that the costs sought to be recovered were just, reasonable, and prudently incurred. In making this determination, the Commission shall consider the reasonable availability of lower cost supplies to the pipeline and the necessity~~

"(a) LIMITATION ON PURCHASED GAS ADJUSTMENTS. - From the first day of the first month following enactment of the Natural Gas Consumer Regulatory Reform Amendments of 1983 through December 31, 1985, that part of a pipeline's first sale acquisition costs under any contract executed or amended after the date of enactment of the Natural Gas Consumer Regulatory Reform Amendments of 1983 which exceeds 110% of the gas cap provided in section 121(a) shall not be subject to the guaranteed passthrough provisions of section 601(c) of the Natural Gas Policy Act. The Commission shall allow collection of such cost increments above 110% of the cap pursuant to the same rate change procedures as all other gas costs and the standards and provisions of the Natural Gas Act shall be fully applicable to such costs; provided, however, that this section shall not apply to any contracts relating to imports of natural gas for which an authorization under Section 3 of the Natural Gas Act has been granted.

Rationale: The INGAA amendments would require that for new contracts, purchased gas cost significantly above average (i.e. above 110 percent) could not be recovered automatically, but would be subject to the provisions of the NGA. However, the Administration's PGA restriction would force interstate pipelines to either curtail new gas purchases or insist on "FERC-out" clauses in contracts. It would most severely impact on those pipelines with the lowest average purchased gas costs. The "consumer protection" clause of S. 615 would surely cause a return to gas shortages in the interstate market.

The INGAA amendments would protect consumers of gas while not placing impossible demands on the regulatory process. Furthermore, pipelines basically would be on even footing in competing for gas reserves since all would face the same kind, and level of allowable PGA passthrough.

~~of such costs for the~~ pipeline to render adequate ~~service to its~~ existing customers. Within sixty days of the date of the enactment of the Natural Gas Consumer Regulatory Reform Amendments of 1983, the Commission shall prescribe rules for applications under this subsection. These rules shall facilitate expeditious decisions on these applications.

"(c) DEFINITIONS.—

"(1) ALLOWED RATE FOR PURCHASED GAS.—The term 'allowed rate for purchased gas' means, for a particular pipeline, for a particular month, the pipeline's average cost per million Btu's for purchased gas delivered to the pipeline during the month preceding the enactment of the Natural Gas Consumer Regulatory Reform Act of 1983 plus the adjustment amount for that particular month.

"(2) ADJUSTMENT AMOUNT.—The term 'adjustment amount' means, for a particular month, the difference between the national rate and the adjusted national rate for that particular month.

"(3) NATIONAL RATE.—The term 'national rate' means the national average cost per million Btu's for purchased gas delivered to all interstate pipelines during the month preceding the enactment of the Natu~~ral Gas~~ Consumer Regulatory Reform ~~Amendments of 1983.~~

"(4) Adjusted national rate.—The term 'adjusted national rate' means—

"(A) for the month in which the Natural Gas Consumer Regulatory Reform Amendments of 1983 is enacted, the national rate multiplied by the annual inflation adjustment factor (as defined in section 101(a) of this Act) for that month; and

"(B) for any particular succeeding month, the adjusted national rate for the preceding month multiplied by the annual inflation factor (as defined in section 101(a) of this Act) for that particular month.

"(d) Reporting Requirement.—By the fifth day following the enactment of the Natural Gas Consumer Regulatory Reform Amendments of 1983, each interstate pipeline shall report its average cost per million Btu's for purchased gas delivered to it during the month preceding the enactment of the Natural Gas Consumer Regulatory Reform Amendments of 1983 and the volume of purchased gas delivered to it during that month.

"(e) Publication.—The Commission shall compute and publish the adjustment amount for each month at least five days before the beginning of that month.

"(f) Affiliated Production.—No interstate pipeline may recover any costs associated with its own production or

~~purchases~~ ~~from any~~ affiliated producer to ~~the extent such pro~~duction or purchases were not reduced to a percentage of deliverability no higher than the percentage of deliverability to which the pipeline had exercised contemporaneously a contractual right ~~to reduce~~ its ~~takes of~~ less ~~expensive gas~~.".

(b) The table of contents of the Natural Gas Policy Act of 1978 (15 U.S.C. 3301 note) is amended by inserting after the item relating to section 602 the following:

"Sec. 603. Purchased Gas Cost."

TITLE II—REMOVAL OF WELLHEAD PRICE CONTROLS AND REPEAL OF JURISDICTION OVER CERTAIN FIRST SALES

REMOVAL OF WELLHEAD PRICE CONTROLS

~~Sec.~~ 201. ~~Section 121~~ of the ~~Natural~~ Gas ~~Policy Act of~~ 1978 (15 U.S.C. 3331) is amended to read as follows:

"SEC. 121. ELIMINATION OF PRICE CONTROLS FOR CERTAIN NATURAL GAS SALES.

"(a) GENERAL RULE.—The provisions of subtitle A respecting the maximum lawful price for any first sale of natural gas shall cease to apply to any first sale of natural gas subject to any contract that was executed or amended after the date of enactment of the Natural Gas Consumer Regulatory Reform Amendments of 1983, unless the contract specifically provides that the contract shall not operate to terminate the application of subtitle A.

"Sec. 201. Section 121 of the Natural Gas Policy Act of 1978 (15 U.S.C. 3331) is:

(a) amended by the addition of new subsection (f):

(f) GENERAL RULE FOR NEW-NEW GAS. –

(1) In the case of any first sale of natural gas pursuant to any contract entered into on or after the date of enactment of the Natural Gas Consumer Regulatory Reform Amendments of 1983, which natural gas was neither being sold nor contractually committed for sale on the day preceding the date of enactment of the Natural Gas Consumer Regulatory Reform Amendments of 1983, the provisions of subtitle A respecting the maximum lawful price for the first sale of natural gas shall cease to apply.

(2) For purposes of this Act, the term "new-new gas" shall mean

~~"(b) HIGH-COST NATURAL GAS.—Except as provided in subsection (a) of this section, with respect to the first sale of high-cost natural gas which is described in section 107(c) (1), (2), (3), or (4)—~~

~~"(1) beginning on the effective date of the incremental pricing rule required under section 201, the provisions of subtitle A respecting the maximum lawful price for the first sale of natural gas shall cease to apply; and~~

~~"(2) beginning on the date of enactment of the Natural Gas Consumer Regulatory Reform Amendments of 1983 through December 31, 1985, the price shall not exceed the higher of the contract price on the date of the enactment of the Natural Gas Consumer Regulatory Reform Amendments of 1983 or the gas cap price, if published, for the month during which the gas is delivered.~~

~~"(c) SPECIAL RULE FOR CERTAIN GAS.—Except as provided in subsection (a), with respect to the first sale of gas covered by this subsection—~~

~~"(1) beginning January 1, 1985, the provision of subtitle A respecting the maximum lawful price shall cease to apply; and~~

gas contracted for on or after the enactment of the Natural Gas Consumer Regulatory Reform Amendments of 1983 as described in this subsection.

(b) amended so that subsection (a) reads as follows:

(a) SPECIAL RULE FOR CERTAIN GAS. -

(1) In the case of any gas purchase contract or other contractual commitment for the first sale of natural gas for which maximum lawful prices cease to apply pursuant to subsections (a) and (c) of this section

(i) which was in effect on the day preceding the effective date of these amendments,

(ii) the pricing terms of which are not thereafter amended, and

(iii) which contains an indefinite price escalator clause as defined in section 105(b)(3)(B),

the price payable pursuant to such contract inclusive of all taxes and adjustments under section 110 of this Act, for any first sale of natural gas for any month during the period commencing six months after the effective date of the Natural Gas Consumer Regulatory Reform Amendments of 1983, and ending on the date the contract terminates or the pricing terms thereof are amended, shall be the lower of the price for such month under the terms of such contract or the market reference price.

(2) MARKET REFERENCE PRICE. - For purposes of this subtitle the term "market reference price" shall be that price per million Btu's equal to the weighted average price paid for new-new gas during the three most recent calendar months

~~"(2) beginning January 1, 1985, through December 31, 1985, the price shall not exceed the gas cap price for the month during which the gas is delivered.~~

~~"(3) GAS COVERED BY THIS SUBSECTION.—This subsection applies to—~~

~~"(A) new natural gas (as defined in section 102(c));~~

~~"(B) natural gas produced from any new, onshore production well (as defined in section 103(c)), if such natural gas—~~

~~"(i) was not committed or dedicated to interstate commerce on April 20, 1977; and~~

~~"(ii) is produced from a completion location which is located at a depth of more than 5,000 feet; and~~

~~"(C) natural gas sold under an existing contract, any successor to an existing contract, or any rollover contract, if—~~

~~"(i) such natural gas was not committed or dedicated to interstate commerce on the day before the date of the enactment of this Act; and~~

~~"(ii) the price paid for the last deliveries of such natural gas occurring on December 31, 1984, or, if no deliveries occurred on~~

for which such data are available as published by the Federal Energy Regulatory Commission, or its successor agency, in the Federal Register, as provided in Subsection (3) hereof.

(3) COMPUTATION AND PUBLICATION OF MARKET REFERENCE PRICE. -

(i) Each interstate pipeline and each intrastate pipeline will advise the Commission monthly of the total volumes of new-new gas purchased by it and the total price paid therefor during the preceding month, inclusive of all taxes and adjustments under section 110 of this Act. Such notification shall be on a form prescribed by the Commission and shall be filed with the Commission before the end of each month reflecting information for the preceding month. The information furnished shall be subject to audit by the Commission Staff as necessary to insure the accuracy thereof.

(ii) Six months after the date of enactment of the Natural Gas Consumer Regulatory Reform Amendments of 1983, the Commission will tabulate volume and price information from all pipelines based upon data available for the three most recent months and calculate the weighted average price for new-new gas during such three month period. Such weighted average price shall be promptly published in the Federal

~~such date, the price that would have been paid had deliveries occurred on such date is higher than $1 per million Btu's.~~

~~"(d) REMOVAL OF WELLHEAD PRICE CONTROLS ON ALL NATURAL GAS.—Except as provided in subsections (a), (b), or (c), beginning January 1, 1986, the provisions of subtitle A respecting maximum lawful price shall cease to apply to the first sale of any natural gas.".~~

~~REPEAL OF NATURAL GAS ACT JURISDICTION OVER FIRST SALES OF COMMITTED OR DEDICATED NATURAL GAS~~

~~SEC. 202. Section 601(a)(1)(B) of the Natural Gas Policy Act of 1978 (15 U.S.C. 3431(a)(1)(B)) is amended to read as follows:~~

~~"(B) COMMITTED OR DEDICATED NATURAL GAS.—Effective on January 1, 1985, for the purposes of section 1(b) of the Natural Gas Act, the provisions of such Act and the jurisdiction of the Commission shall not apply solely by reason of any first sale of natural gas which was committed or dedicated to interstate commerce as of the day before the date of enactment of this subsection. Effective on the date of enactment of the Natural Gas Consumer Regulatory Reform Amendments of 1983 through December 31, 1984, for the purposes of section 1(b) of the Natural Gas Act, the~~

Register and shall constitute the market reference price for the first quarterly period following publication of the price. The Commission shall tabulate and publish on or before April 5, July 5, October 5 and January 5 of each year thereafter a weighted average price to be used for successive quarterly periods based upon data available for the three most recent months.

(4) CONTRACTS CONTAINING AREA RATE CLAUSES. -

(i) For purposes of any area rate clause, the price payable thereunder shall in no event exceed the Market Reference Price as determined under subsection (3);(2).

(ii) For purposes of this paragraph, the term "area rate clause" means any contractual provision which bases the contract price for the first sale of natural gas on any rate or price which is established by an Act of Congress or by the Commission or any successor to the Commission without regard to whether the clause specifies the identity of the Federal authority establishing or sanctioning such rate or price.

(c) amended by striking "January 1, 1985:" in subsection (a) and inserting in lieu thereof "six months following the date of enactment of the Natural Gas Consumer Regulatory Reform Amendments of 1983:".

~~provisions of such Act and the jurisdiction of the Commission under such Act shall not apply solely by reason of any first sale of natural gas which is committed or dedicated to interstate commerce as of the day before the date of enactment of this Act and which is—~~

~~"(i) high-cost natural gas (as defined in section 107(c) (1), (2), (3), or (4) of this Act);~~

~~"(ii) new natural gas (as defined in section 102(c) of this Act);~~

~~"(iii) natural gas produced from any new, onshore production well (as defined in section 103(c) of this Act);~~

~~"(iv) natural gas exempted from the operation of subtitle A of title I pursuant to section 121(a); or~~

~~"(v) natural gas that was subject to a contract that expired, lapsed, was terminated pursuant to its own terms, or was terminated pursuant to the provisions of section 316 of this Act.".~~

(d) amended by striking "July 1, 1987," in subsection (c) and inserting in lieu thereof "six months following the date of enactment of the Natural Gas Consumer Regulatory Reform Amendments of 1983;".

Rationale: S. 615 and the NGCRRA amendments would decontrol new-new gas and renegotiated contracts and establish a price cap to limit prices, but unlike S. 615, NGCRRA would not include renegotiated contracts in its cap; the cap would apply to contracts with indefinite price escalator clauses; the cap would be computed based on a rolling average of new-new gas costs; and the NGCRRA cap would apply permanently, unless the contract was renegotiated.

NGCRRA would decontrol sections 102 and 103 gas at the time the cap is imposed. Further, the NGCRRA amendment would retain controls on "forever regulated" gas.

REPEAL OF PROVISIONS ALLOWING REIMPOSITION OF PRICE CONTROLS AND REPORT TO CONGRESS

~~Sec. 203.~~ (a) Sections 122, 123, and 507 of the Natural Gas Policy Act of 1978 (15 U.S.C. 3332, 3333, and 3417) are repealed.

(b) The table of contents of the Natural Gas Policy Act of 1978 (15 U.S.C. 3301 note) is amended by striking the items relating to sections 122, 123, and 507.

TITLE III—TRANSITIONAL PRICE AND CONTRACT PROVISIONS

LIMITATION ON CEILING PRICES FOR CERTAIN NATURAL GAS

Sec. 301. (a) Title I of the Natural Gas Policy Act of 1978 (15 U.S.C. 3311–3333) is amended by adding the following new section:

"SEC 111. LIMITATION ON CEILING PRICES FOR CERTAIN NATURAL GAS.

"(a) General Rule.—Except as provided in section 121 of this Act, beginning on the date of enactment of this section, the maximum lawful price of any first sale of natural gas subject to this subtitle shall not exceed the lower of the applicable price as calculated pursuant to sections 102 through 106, 108, and 109 or the gas cap price, if published, for the month during which the gas is delivered.

Line 3, strike "Sec. 203" and insert in lieu thereof: "Sec. 202".

*READER'S NOTE: If these sections are repealed, there are numerous conforming changes to the NGPA that should also be made.

Line 24, add the following after "delivered."

"Section 102(b)(2)(B) and section 108(a)(2)(B) are hereby repealed as of the effective date of the Natural Gas Consumer Regulatory Reform Amendments of 1983."

__Rationale__: The INGAA amendment would repeal the automatic statutory __4 percent__ escalations in sections 102 and 108 of the NGPA. The intended purpose of section 101 of S. 615 is to hold price increases of gas supplies to the level of prices being paid when the Bill is enacted plus inflation. The 4 percent "kickers" in sections 102 and 108 of the NGPA are inconsistent with this intent and are inappropriate given today's gas markets.

"(b) SPECIAL RULE FOR SECTION 107(c)(5) GAS.—Except as provided in section 121 of this Act, beginning on the date of the enactment of the Natural Gas Consumer Regulatory Reform Amendments of 1983, the maximum lawful price for gas described in subsection (c)(5) of section 107 of this Act shall be no higher than the maximum lawful price for such gas during the month in which the Natural Gas Consumer Regulatory Reform Amendments of 1983 are enacted.

"(c) DEFINITION OF GAS CAP PRICE.—The term 'gas cap price' means, for a particular month, the volume-weighted average price of natural gas that is estimated to be—

"(1) delivered during the second, third, and fourth months preceding that particular month; and

"(2) delivered during the first three months of deliveries under a contract filed under subsection (e) of this section.

"(d) CALCULATION AND PUBLICATION OF THE GAS CAP PRICE.—Beginning with the fourth month after enactment of the Natural Gas Consumer Regulatory Reform Amendments of 1983, the Commission (in accordance with section 101(a)(6) of this subtitle) shall compute and publish the gas cap price for each month through December 1985.

"(e) FILING REQUIREMENT.—A purchaser of natural gas subject to a first sale contract executed or amended on or after the date of the enactment of the Natural Gas Consumer

Regulatory Reform Amendments of 1983 shall file with the Commission within five days of the date on which the contract is executed or amended—

"(1) a summary of the contract and all ancillary agreements, including all pricing provisions;

"(2) the prices to be paid under the contract during the first three months of deliveries;

"(3) the estimated volumes (in millions of Btu's) to be delivered during the first year of the contract; and

"(4) any additional data required by the Commission.

This filing requirement does not apply in the case of an amendment of a contract for which data previously relating to price has been filed with the Commission under this subsection.

"(f) COMMISSION RULES.—Within thirty days of the enactment of the Natural Gas Consumer Regulatory Reform Amendments of 1983, the Commission shall issue rules to implement this section.".

(b) The table of contents of the Natural Gas Policy Act of 1978 (15 U.S.C. 3301 note) is amended by inserting after the item relating to section 110 the following:

"Sec. 111. Limitation on Ceiling Prices for Certain Natural Gas.".

(c) Section 101(b)(5) of the Natural Gas Policy Act of 1978 (15 U.S.C. 3311(b)(5)) is amended by striking the period at the end and inserting the following: ", but in no event shall the operation of this paragraph be deemed to entitle any seller to collect a price in excess of that established pursuant to section 111.".

(d) Section 105(b)(3)(B) of the Natural Gas Policy Act of 1978 is amended by adding a new sentence at the end to read as follows: "This definition shall not include any clause which establishes the price for natural gas exempted from the operation of this subtitle pursuant to section 121(a).".

~~REPEAL OF CERTAIN CONTRACT REQUIREMENTS AND IMPOSITION OF TAKE-OR-PAY LIMITS~~

~~SEC. 302. (a) Section 315 of the Natural Gas Policy Act of 1978 (15 U.S.C. 3375) is repealed, and a new section 315 is inserted in its place to read as follows:~~

~~"SEC. 315. IMPOSITION OF TAKE-OR-PAY LIMITS.~~

~~"(a) GENERAL RULE.—In the case of any first sale contract in effect on the date of enactment of the Natural Gas Consumer Regulatory Reform Amendments of 1983, which has not been amended subsequent to the date of enactment, and which contains a clause requiring a purchaser to take delivery of, or if not taken, to pay for, volumes of gas in excess of 70 per centum of available deliverability from those wells included under a contract, the purchaser may exercise without obligation to pay for volumes not taken in excess of 70 per centum of well deliverability, a right not to accept~~

Line 9, strike "section 121(a)." and insert in lieu thereof "section 121(f)."

Sec. 302. Section 315 of the Natural Gas Policy Act of 1978 (15 U.S.C. 3375) is amended by adding a new section (d) to read as follows:

"(d) SUSPENSION OF CERTAIN PRICE RELATED CONTRACTUAL PROVISIONS. -

(1) APPLICATION. - Notwithstanding any other provisions of law, for a period of thirty-six months from and after the effective date of the Natural Gas Consumer Regulatory Reform Amendments of 1983, the provisions of any gas sales or purchase contract applicable to the first sale of gas, except casinghead gas, which has the effect of requiring the purchaser to make payment to the seller if gas volumes tendered by the seller under the contract are not taken by the purchaser, shall be limited to payment for gas tendered up to 50% of deliverability.

~~delivery of any portion of the total volume which exceeds 70 per centum of well deliverability. This right applies only to deliveries under a contract from the date of enactment of the Natural Gas Consumer Regulatory Reform Amendments of 1983 through December 31, 1985.~~

~~"(b) NOTICE REQUIREMENT.—Any purchaser electing to reduce volumes purchased pursuant to this section must give the seller a minimum of thirty days written notice prior to the date of delivery of the natural gas involved.~~

~~"(c) RELEASE OF CONTRACTUAL OBLIGATIONS.—Upon receipt of the notice provided for in subsection (b), the seller shall have the right to terminate the contract with respect only to amounts not taken by reason of this section. If the seller elects to terminate the contract in accordance with this section, the purchaser shall tender to the seller full and unconditional release from all duties and obligations in contract or in law. The purchaser, if a transporter of natural gas, shall tender transportation in accordance with the provisions of section 316(d) of this Act.~~

~~"(d) DRAINAGE SITUATIONS.—The Commission, by rule or order, may determine that this section shall not apply to the extent the production of the volume for which delivery is required to be taken is necessary in order to prevent drainage and protect the correlative rights of the person producing the natural gas involved.~~

(2) NOTICE REQUIREMENT. - Any purchaser electing to reduce volumes purchased pursuant to this section must give the seller a minimum of thirty days written notice prior to the date of the reduction of delivery of the natural gas involved.

(3) MAKE-UP. - The purchaser shall be able to make up take-or-pay payments paid or incurred by the end of the 36 month period from deliveries above 50% taken during said 36 month period and thereafter until fully recovered.

(4) CONTRACTS COVERING MORE THAN ONE CATEGORY OF NATURAL GAS. - For purposes of this section, any contract establishing two or more categories of natural gas for purposes of pricing the natural gas delivered under the contract shall be treated as separate contracts for each such category.

(5) DELIVERABILITY. - For purposes of this section deliverability shall be determined by reference to other provisions of the contract, or if there are none, as defined by rule or order of the Commission."

Rationale: The INGAA amendment would limit take-or-pay provisions to 50 percent and provide for a right of make-up for volumes not taken. The proposed 70 percent take-or-pay limitation in S. 615 (sec. 302) is a move in the right direction, but its beneficial impact would be minimal Under the INGAA proposal, a pipeline would retain the flexibility to adjust the take rate to make-up volumes not needed in one period, at a later date.

"(e) CASINGHEAD NATURAL GAS.—This section shall not apply to casinghead natural gas.

"(f) CONTRACTS COVERING MORE THAN ONE CATEGORY OF NATURAL GAS.—For purposes of this section, any contract establishing two or more categories of natural gas for purposes of pricing the natural gas delivered under the contract shall be treated as separate contracts for each such category.".

(b) The table of contents of the Natural Gas Policy Act of 1978 (15 U.S.C. 3301 note) is amended by striking the item relating to section 315 and inserting in its place the following:

~~"Sec. 315. Imposition of Take-or-Pay Limits.".~~

~~MARKET~~-OUT-~~PROVISION~~

SEC. 303. (a) Title III of the Natural Gas Policy Act of 1978 (15 U.S.C. 3361–3375) is amended by adding a new section 316 to read as follows:

~~"SEC. 316.~~ MARKET-~~OUT PROVISION~~.

"(a) GENERAL RULE.—Beginning January 1, 1985, either party to a contract for the first sale of natural gas which was in effect on the date of enactment of the Natural Gas Consumer Regulatory Reform Amendments of 1983 and which contract was not thereafter amended shall have the right to terminate the contract under the following conditions:

Line 13, strike "market-out" and insert in lieu thereof "contract termination"

SECTION 316 - CONTRACT TERMINATION PROVISION

"(a) GENERAL RULE. - Either party to a contract or contractual commitment for the first sale of natural gas which is high cost natural gas (as defined in section 107 of this Act) which was in effect on date of the enactment of the Natural Gas Consumer Regulatory Reform Amendments of 1983, and which was not thereafter amended, may elect and shall have the right to terminate that portion of such contract under the following conditions:

"(1) the party wishing to terminate the contract must give notice to the other party between November 16, 1984, and November 15, 1985, and at least forty-five days in advance, that the contract is to be terminated;

"(2) the party giving notice of termination does not materially breach the contract at any time prior to the end of the notice period; and

"(3) the party giving notice of termination must offer to the other party a full and unconditional release from all *future* duties and obligations in contract or in law relating to the contract, which release is effective upon termination of the notice period.

"(b) EFFECT OF SECTION 315 REDUCTION.—A reduction of a take-or-pay obligation pursuant to section 315 of this Act shall not be considered an amendment for purposes of subsection (a) of this section.

"(c) OBLIGATIONS OF PARTIES UPON TERMINATION.—Neither party to a contract terminated pursuant to this section shall have an obligation to perform any act because of the contract on and after the effective date of the termination of the contract, except that a party that has received a good or service under the contract before the effective date of its termination shall have a duty to pay for that good or service as provided for in the contract and that a

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(1) the party wishing to terminate the contract must give notice to the other party at any time between the effective date of the Natural Gas Consumer Regulatory Reform Amendments of 1983 and one year thereafter;

(2) notice of termination shall provide for a termination date no less than 60 days following the date of receipt of the notice;

(3) The party giving notice of termination must offer to the other party a full and unconditional release from all future duties and obligations in the contract or in law relating to the contract, which release is effective upon termination of the notice period; and

(4) a purchaser under a contract which has been terminated pursuant to this section shall be granted a right of first refusal of the first offer to sell such natural gas which, subject to the exercise of any right of first refusal under this paragraph, has been substantially accepted in principle by another person in an arm's length transaction. This first offer must be communicated to the purchaser by the seller within ____ days of the acceptance in principle and must be accepted by the purchaser within fifteen (15) days following receipt of the notice of the terms and conditions of said first offer.

(b) EFFECT OF SECTION 315 REDUCTION. - A reduction of a take-or-pay obligation pursuant to section 315 of this Act shall not be considered an amendment for purposes of subsection (a) of this section.

~~party that has received payment under the contract for a good or service that was not provided before the effective date of its termination shall have a duty to make restitution of the payment in cash or in kind in accordance with the contract.~~

"(d) TRANSPORTATION OBLIGATION.—

"(1) IN GENERAL.—In the event that a contract is terminated under this section, a pipeline that was a party to the terminated contract shall have an obligation to transport natural gas for a producer that was a party to the terminated contract. The obligation of the pipeline shall not exceed on an annual basis the largest volume delivered under the contract during any twelve consecutive months in the thirty-six months prior to its termination.

"(2) LIMITATION OF OBLIGATION.—The Commission, or in the case of an intrastate pipeline the State agency with jurisdiction over that pipeline, upon application by the pipeline and after opportunity for hearing, may order a limitation of the obligation of the pipeline under this subsection if compliance with the obligation would require construction of additional facilities or would impair the ability of the pipeline to render adequate service to its existing customers.

(c) OBLIGATIONS OF PARTIES UPON TERMINATION. - Subject to subsection (a)(4) of this section, neither party to a contract terminated pursuant to this section shall have an obligation to perform any act because of the contract on and after the effective date of the termination of the contract, except that a party that has received a good or service under the contract before the effective date of its termination shall have a duty to pay for that good or service as provided for in the contract and that a party that has received payment under the contract for a good or service that was not provided before the effective date of its termination shall have a duty to make restitution of the payment in cash or in kind in accordance with the contract."

__Rationale__: The INGAA amendment would modify the "market-out" provisions of S. 615 to allow either party to a contract, involving the first sale of natural gas under NGPA section 107, the option to immediately terminate that portion of the contract if various conditions are met. Sections 102 and 103 gas would, under the INGAA amendments, be subject to the capping mechanism, and therefore be excluded from the market-out provisions of S. 615.

Line 24, strike "." and add the following:

"; provided, however, that the transportation obligation of an interstate pipeline shall not be inconsistent with, or preclude the use of, the provisions of section 7 of the Natural Gas Act."

"(9) CONSIDERATION.—The consideration for any transportation provided under this subsection shall be $0.05 per million Btu's plus the cost of such transportation, as established by the appropriate State or Federal regulatory body, unless the Commission has established, by rule, a different rate as just compensation for such transportation. No amount of such consideration shall be required to be credited and flowed back to the customers of such pipeline.".

(b) The table of contents of the Natural Gas Policy Act of 1978 (15 U.S.C. 3301 note) is amended by inserting after the item relating to section 315 the following:

"~~Sec. 318. Market-Out Provision.~~".

~~EFFECT OF GAS CAP PRICE~~

~~SEC. 304. (a) Title III of the Natural Gas Policy Act of 1978 (15 U.S.C. 3361–3375) is amended by adding a new section 318 to read as follows:~~

~~"SEC. 318. EFFECT OF GAS CAP PRICE.~~

~~"(a) Price Escalator Clauses.—Except for natural gas described in section 107 of this Act, no price escalator clause may operate to establish a price for natural gas which is subject to the provisions of subtitle A respecting the maximum lawful price for the first sale of natural gas higher than the gas cap price. For purposes of this subsection, the term "price escalator clause" means any contract clause that provides for a periodic price increase, either on a fixed or indefi-~~

Line 6, strike "different rate as just compensation" and insert in lieu thereof "higher rate".

Line 12, strike "Market-Out Provision," and insert in lieu thereof "Contract Termination Provision."

nite basis, or that references other natural gas prices, federally imposed price ceilings, or prices of other commodities.

"(b) AREA RATE CLAUSES.—For purposes of an area rate clause, the gas cap is a Federally established rate or price. After December 31, 1985, the gas cap price for December 1985 is a federally established rate or price.".

(b) The table of contents of the Natural Gas Policy Act of 1978 (U.S.C. 3301 note) is amended by inserting after the item relating to section 317 the following:

~~"Sec. [illegible]. Effect of the Cap Price.".~~

TITLE IV—REMOVAL OF IMPEDIMENTS TO INTERSTATE MOVEMENTS OF GAS

AUTHORIZATION OF CERTAIN INTERSTATE SALES, TRANSPORTATION AND ASSIGNMENTS

SEC. 401. (a) Section 311(a) of the Natural Gas Policy Act of 1978 (15 U.S.C. 3371(a)) is amended by—

(1) amending subparagraph (A) of paragraph (1) to read as follows:

"(A) IN GENERAL.—The Commission may, by rule or order, authorize any interstate pipeline to transport natural gas on behalf of any person.".

(2) inserting "AND LOCAL DISTRIBUTION COMPANIES" after "INTRASTATE PIPELINES" in the paragraph (2) heading;

(3) inserting in paragraph (2) "or local distribution company" after "intrastate pipeline";

(4) amending subparagraph (A) of paragraph (2) to read as follows:

"(A) In General.—The Commission may, by rule or order, authorize any intrastate pipeline or local distribution company to transport natural gas on behalf of any person.".

(5) in subparagraph (B)(ii) (I) and (II) of paragraph (2), inserting "or company" after "pipeline".

(b) Section 311(b) of the Natural Gas Policy Act of 1978 (15 U.S.C. 3371(b)) is amended by—

(1) amending paragraph (1) to read as follows:

"(1) In General.—The Commission may, by rule or order, authorize any pipeline or local distribution company to sell natural gas to any pipeline or local distribution company.".

(2) amending paragraph (2) by—

(A) striking "Maximum Fair and Equitable Price" after the subparagraph designator "A" and inserting in its place "Intrastate Pipelines and Local Distribution Companies";

(B) inserting "or local distribution company" following "pipeline" and "or local distribution company's" following "pipeline's" wherever they appear; and

(C) inserting "(including storage)" after "transportation" in clause (i) of subparagraph (B);

(D) adding a new subparagraph (D) to read as follows:

"(D) INTERSTATE PIPELINES.—The rates and charges of any interstate pipeline with respect to any sales authorized under subsection (b)(1)(A) shall be just and reasonable (within the meaning of the Natural Gas Act).";

(3) in paragraph (4), striking "pipeline's" and inserting in its place "seller's", and striking "INTRASTATE" in the heading and inserting in its place "EXISTING";

(4) in paragraphs (4)-(7), except for subparagraph (5)(a)(i), striking "intrastate pipeline" or "pipeline" wherever they appear and inserting in their place "seller";

(5) in paragraph (5)(A)(i), striking "interstate pipeline or local distribution" and inserting in its place "purchasing"; and

(6) adding a new paragraph (8) to read as follows:

"(8) DEFINITION OF SELLER.—For purposes of this subsection, the term 'seller' means any person that sells gas under paragraph (b)(1).".

(c) Section 312 of the Natural Gas Policy Act of 1978 (15 U.S.C. 3372) is amended—

(1) by amending subsection (a) to read as follows:

"(a) AUTHORIZATION OF ASSIGNMENTS.—The Commission may, by rule or order, authorize a pipeline or local distribution company to assign, without compensation, to any other pipeline or local distribution company, all or any portion of the assignor's right to receive surplus natural gas at any first sale, upon such terms and conditions as the Commission determines appropriate."; and

(2) by amending subsection (c) to read as follows:

"(c) SURPLUS NATURAL GAS.—For purposes of this section, the term 'surplus natural gas' means, with respect to any pipeline or local distribution company, any natural gas which exceeds the then current demands of such person for natural gas, as determined by—

"(1) the Commission, or

"(2) the State agency having regulatory jurisdiction over that person.".

ACCESS TO INTERSTATE SUPPLY SOURCES

SEC. 402. (a) Section 314 of the Natural Gas Policy Act of 1978 (15 U.S.C. 3374) is amended by—

(1) striking "first" in subsection (a), and

(2) amending subsection (b) to read as follows:

"(b) NATURAL GAS COVERED BY THIS ACT.—For purposes of subsection (a), the term 'natural gas covered by this Act' means—

"(1) for any first sale contract, natural gas—

"(A) which is not subject to the jurisdiction of the Commission under the Natural Gas Act by reason of section 601(a)(1) (A) or (B);

"(B) the sale in interstate commerce of which—

"(i) is authorized under section 302(a) or 311(b); or

"(ii) is pursuant to an assignment under section 312(a); or

"(C) the transportation in interstate commerce of which is—

"(i) pursuant to any order under section 302(a) or section 303 (b), (c), (d), or (e); or

"(ii) authorized by the Commission under section 311(a)~~; or~~ .

"(2) for any contract, natural gas the sale or transportation of which under the contract is not in interstate commerce by reason of section 601(a) of this Act.".

Line 19, strike "; or" and insert in lieu thereof ".".

(b) Section 601 of the Natural Gas Policy Act of 1978 (15 U.S.C. 3431) is amended by adding new subsections (d) ~~and (e)~~ to ~~read as follows:~~

"(d) LIMITATION OF COMMISSION JURISDICTION OVER INTRASTATE TRANSACTIONS.—

"(1) GENERAL RULE.—No intrastate pipeline or local distribution company shall be subject to the jurisdiction of the Commission under the Natural Gas Act by reason of purchasing natural gas in a covered transaction.

"(2) SUBSEQUENT TRANSACTIONS.—Any transportation or sale of natural gas purchased in a covered transaction which occurs beyond the point at which such gas is received in the facilities of the purchaser in the covered transaction shall not be in interstate commerce (within the meaning of the Natural Gas Act) and shall not be subject to the jurisdiction of the Commission under the Natural Gas Act to the extent that such gas remains in the State of purchase.

"(3) NATURAL-GAS COMPANY.—For purposes of the Natural Gas Act, the term 'natural-gas company' (as defined in section 2(6) of that Act) shall not include any person by reason of, or with respect to, any transportation or sale of natural gas if the transportation or

Line 2, strike "subsections (d)" and insert in lieu thereof "subsection (d)."

(d) PARITY OF ACCESS BY INTRASTATE PIPELINES. - On and after the effective date of the Natural Gas Consumer Regulatory Reform Amendments of 1983, for the purposes of Section 1(b) of the Natural Gas Act, the provisions of the Natural Gas Act and the jurisdiction of the Commission, under such Act, shall not apply to an intrastate pipeline or any facilities owned or operated thereby or any services provided by such facilities commencing upon its receipt, within or at the boundary of the state in which its intrastate facilities are located, of natural gas that has been purchased from the Outer Continental Shelf or from another state by an interstate affiliate of such an intrastate pipeline and sold to such an intrastate pipeline; provided, however, that except for sales under Title III of this Act, the gas so received must ultimately be used within the state of receipt; and provided further, that nothing herein shall exempt the interstate affiliate or its facilities or services from the jurisdiction of the Commission under either the Natural Gas Act or this Act.

Rationale: INGAA would strike those portions of S. 615 that would, in essence, allow intrastate pipelines the opportunity to act as interstate pipelines without being subject to the regulatory responsibilities of being an interstate pipeline. The suggested INGAA amendments would clarify that an intrastate pipeline company could buy and transport gas on the OCS or in a "foreign" state, through an affiliated corporate entity that would be a "Natural Gas Company" within the meaning of the Natural Gas Act and the Natural Gas Policy Act. Furthermore, the amendment would assure that such operations would not cause the parent company to become a jurisdictional company.

sale is not subject to the jurisdiction of the Commission solely by reason of paragraph (2) of this subsection.

"(4) STATE OF PURCHASE RULE.—For purposes of this subsection, natural gas shall be deemed to remain in the State of purchase if the gas is not transported outside the State in which it was received into the facilities of the purchaser of the gas in a covered transaction, unless such transportation occurs in connection with—

"(A) transportation authorized under sections 302(a) or 311(a) of this Act, or

"(B) a sale or assignment authorized under sections 311(b) or 312 of this Act."

"(5) DEFINITION OF COVERED TRANSACTION.—For purposes of this subsection, the term 'covered transaction' means—

"(A) a first sale of gas—

"(i) which is not subject to the jurisdiction of the Commission under the Natural Gas Act by reason of subparagraph (A) or (B) of paragraph (1) of subsection (a),

"(ii) which is produced on the Outer Continental Shelf, or

"(iii) which is transported pursuant to an order issued under section 317 of this Act;

"(B) a sale or assignment authorized under section 302(a), 311(b), or 312(a) of this Act; or

"(C) a sale for resale by any person not subject to the jurisdiction of the Commission solely by reason of section 1(c) of the Natural Gas Act.

"(e) NONDISCRIMINATION PROVISION.—The Commission may not condition or deny any authorization of the sale or transportation of natural gas under this Act or the Natural Gas Act on the basis of whether the gas is consumed in the i~~nterstat~~e mar~~ket or the~~ intra~~state mar~~ket.".

CONTRACT CARRIER AUTHORIZATION

SEC. 403. (a) Title III of the Natural Gas Policy Act of 1978 (15 U.S.C. 3361–3375) is amended by adding a new section 317 to read as follows:

"SEC. 317. CONTRACT CARRIER AUTHORIZATION.

"~~(a) In G~~ENE~~RAL.—~~Upon ~~application by a producer of natur~~al ga~~s or by~~ a ~~purchaser of natur~~al ga~~s from a producer, the Com~~mission s~~hall or~~der a~~ny inter~~state ~~pipeline~~ t~~o carry~~ gas under contract between producer and purchaser upon such terms and subject to such conditions as it considers just and reasonable if the Commission finds that such pipeline has available capacity, that no undue will be place upon such

Strike lines 19-21 and insert in lieu thereof:

"(a) GENERAL. - Upon application of a pipeline and a producer of natural gas or by a pipeline and a purchaser of natural gas from a producer, the Commission may authorize the interstate pipeline to carry".

Rationale: The INGAA amendment would modify the contract carrier portion of S. 615 to encourage such arrangements, but insure that pipeline companies are not compelled to enter into such agreements. Contract carriage is not new to the interstate pipeline industry. Many INGAA members presently transport gas owned by others but because of the service obligations to existing customers and the lack of monetary incentives it is not a major part of the interstate pipeline system.

INGAA is not adverse to the possibility of expanded contract carrier arrangements, however, to compel interstate pipelines to transport gas would raise serious problems and could be counterproductive to the efficient utilization of the individual pipeline systems.

pipeline, that no construction of new facilities would be required, and that such order would not impair the ability of such pipeline to render adequate service to its existing customers. The Commission may implement this section by rule or order.

"(b) CONSIDERATION.—The consideration for any transportation provided under this section shall be $.05 per million Btu's plus the cost of such transportation, as established by the Commission, unless the Commission has established, by rule, a different rate as just compensation for such transportation. No amount of such consideration shall be required to be credited and flowed back to the customers of such pipeline.".

Line 10, strike "different rate as just compensation" and insert in lieu thereof "higher rate".

(b) The table of contents of the Natural Gas Policy Act of 1978 (15 U.S.C. 3301 note) is amended by inserting after the item relating to section 316 the following:

"Sec. 317 Contract Carrier Authorization.".

TITLE V—REPEAL OF CERTAIN RESTRICTIONS ON NATURAL GAS AND PETROLEUM USE AND PRICING

REPEAL OF CERTAIN SECTIONS OF THE POWERPLANT AND INDUSTRIAL FUEL USE ACT OF 1978

SEC. 501. (a) The following sections of the Powerplant and Industrial Fuel Use Act of 1978 (42 U.S.C. 8301 et seq.) are repealed:

(1) section 102 (a)(16), (a)(18), (a)(19), and (a)(29)) (42 U.S.C. 8302 (a)(16), (a)(18), (a)(19), and (a)(29));

(2) sections 201 and 202 (42 U.S.C. 8311 and 8312);

(3) section 302 (42 U.S.C. 8342);

(4) section 401 (42 U.S.C. 8371);

(5) section 402 (42 U.S.C. 8372); and

(6) section 405 (42 U.S.C. 8375).

(b) The table of contents in section 101(b) of the Powerplant and Industrial Fuel Use Act of 1978 (42 U.S.C. 8301(b)) is amended by striking the items relating to the sections repealed by subsection (a) of this section.

CONFORMING AMENDMENTS

SEC. 502. (a) Section 102 of the Powerplant and Industrial Fuel Use Act of 1978 (42 U.S.C. 8301) is amended by striking "and major fuel-burning installations" and "and new" wherever these phrases appear.

(b) Section 103 of the Powerplant and Industrial Fuel Use Act of 1978 (42 U.S.C. 8302) is amended—

(1) in subsection (a)(13)(B), by—

(A) striking clause (ii)(III);

(B) striking "; or" at the end of clause (ii)(II), and inserting a period in its place; and

(C) inserting "and" at the end of clause (ii)(I);

(2) in subsection (a)(15), by striking "or major fuel-burning installation" and "or new" wherever these phrases appear;

(3) in subsection (a)(20), by striking "or major fuel-burning installation";

(4) by redesignating subsections (a)(17), (a)(20), (a)(21), (a)(22), (a)(23), (a)(24), (a)(25), (a)(26), (a)(27), and (a)(28) as subsections (a)(16), (a)(17), (a)(18), (a)(19), (a)(20), (a)(21), (a)(22), (a)(23), (a)(24), and (a)(25);

(5) in subsection (b), by striking "or major fuel-burning installation" wherever this phrase appears;

(6) in subsection (b)(1)(D), by striking everything after "synthetic gas involved" and inserting in its place a period; and

(7) by striking subsection (b)(3), and redesignating subsection (b)(4) as subsection (b)(3).

(c) Section 104 of the Powerplant and Industrial Fuel Use Act of 1978 (42 U.S.C. 8303) is amended to read as follows:

"The provisions of this Act shall apply in all the States, Puerto Rico, and the territories and possessions of the United States.".

(d) Section 303 of the Powerplant and Industrial Fuel Use Act of 1978 (42 U.S.C. 8343) is amended—

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(1) by striking "or installation" and "or installations" wherever the phrases appear;

(2) by striking "or 302" wherever the phrase appears;

(3) by striking subsection (a)(3);

(4) by amending subsection (b)(1) to read as follows:

"(1) The Secretary may prohibit, by rule, the use of natural gas or petroleum under section 301(b) in existing electric powerplants.";

(5) in subsection (b)(3), by striking "or major fuel-burning installation"; and

(6) by amending the last sentence of subsection (b)(3) to read as follows: "Any such rules shall not apply in the case of any existing electric powerplant with respect to which a comparable prohibition was issued by order.".

(e) Section 403 of the Powerplant and Industrial Fuel Use Act of 1978 (42 U.S.C. 8373) is amended by striking—

(1) in subsection (a)(1), "major fuel-burning installation, or other unit" and the comma immediately preceding this phrase and "installation, or unit" and the comma immediately preceding this phrase;

(2) in subsection (a)(2), "installation, or other unit" and the comma immediately preceding that

ENERGY AND NATURAL RESOURCES COMMITTEE
HEARING ON
PENDING NATURAL GAS LEGISLATION
SATURDAY, MARCH 12, 1983
9:30 a.m.
ROOM SD-106

WITNESS LIST

The Honorable C. M. Butler, Chairman
Federal Energy Regulatory Commission

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Panel 1

National Association of Regulatory Utility Commissioners
Represented by: Ms. Laura L. Murrell, Chairman
Public Service Commission
Commonwealth of Kentucky

Mr. Brian Lederer
National Association of State Utility Consumer Advocates

Mr. Frank Simoneaux
Louisiana Department of Natural Resources

Mr. Leonard S. Coleman, Commissioner
New Jersey Department of Energy

Mr. Philip R. O'Conner, Chairman
Illinois Commerce Commission

Panel 2

Mr. John H. Croom, President
Columbia Gas System

Mr. Wayne Johnson, President
Entex

Mr. O.C. Davis, Chairman
Midcon Corp

Mr. John Abram, Chairman
Southern California Gas Company

Panel 3

Mr. Stuart Mut
Atlantic Richfield Company

Mr. C. Robert Palmer
International Association of Drilling Contractors

Mr. Dwight Moorhead, Vice Chairman
Petro-Lewis Corporation

Mr. William Murray
Independent Gas Consultant

Mr. Russell Thompson
Operational Economics, Inc.

Panel 4

National Association of Manufacturers
Represented by: Mr. James S. Rubin
Allied Corporation

National Oil Jobbers Council
Represented by: Mr. Chris Weber, President
Weber Oil Company

Mr. John Buckley
Northeast Coalition for Energy Equity

Mr. George Rosenthal, Chairman
National Affairs Committee
Independent Bakers Association

Mr. Donald Fonville
Richmond United Neighborhoods

MINORITY MEMBERS' ADDITIONAL QUESTIONS FOR NATURAL GAS HEARING RECORD

WITNESSES APPEARING MARCH 12, 1983

QUESTIONS FOR CHAIRMAN BUTLER

1. Your prepared statement provides several "assumed" ceiling prices for natural gas if S. 615 is enacted.

   a. What is your best estimate of what the new maximum lawful price for natural gas would actually be?

   b. Please describe the method used to derive that price.

2. What would that price be if only new contracts, and not renegotiated contracts, are included?

3. If S. 615 were enacted, and if FERC did not allow any PGA costs in excess of the rate of inflation to go into effect, what is your best estimate of how it would affect residential prices paid each year for the next five years?

   a. How would that compare with prices if prices in excess of the rate of inflation were allowed to go into effect, as you have suggested, for the next five years?

   b. How would that compare with prices under the NGPA for the next five years?

4. What part of increases in natural gas prices paid by residential consumers in the last 5 years has been due to increases in purchase gas costs?

5. What part of increases has been due to factors other than purchase gas costs which are ordinarily included in general rate filings?

6. The consumer protection provision in the Administration bill relating to purchased gas cost does not prohibit a pipeline from including increases in purchased gas costs which exceed the limitation in a general rate filing.

   a. Under current FERC regulations, as interpreted by the courts, can a pipeline include increases in purchase gas costs in a general rate filing?

   b. If S. 615 were enacted, would it affect a pipeline's ability to include increases in purchased gas cost in excess of the allowed rate for purchased gas (as defined in S. 615) in a general rate filing, if denied under passthrough under new Sec. 603?

7. If, after review, any or all of a pipeline's purchased gas cost increase is ultimately granted, would the pipeline get to recover the full cost of financing (including interest cost) which it incurred while awaiting an FERC decision?

8. The Administration bill requires the Commission to "allow recovery (of the full PGA) if it determines that the costs sought to be recovered were just, reasonable, and prudently incurred." Under the existing law, a pipeline's purchases are presumed to be prudent; the person challenging those purchases has the burden of proof. Would S. 615 change that burden?

9. The Administration bill requires the Commission, in making the determination of whether costs were prudently incurred, to "consider the reasonable availability of lower cost supplies to the pipeline and the necessity of such costs for the pipeline to render adeqaute service to its existing customers."

a. What factors would the Commission have to consider to make such a determination?

b. Do you have sufficient information available today to make such a determination? If not, what additional information would be necessary?

c. How would the Commission know what supplies were available?

10. As a matter of law, how would the "adequate service" standard be related to the current case law interpretation of "adequate service" under the Natural Gas Act?

a. For example, would "adequate service" include industrial curtailments in extremely cold weather?

b. Would it include the pipeline's ability to meet not only the present but the reasonably foreseeable requirements of the pipeline's existing customers?

11. The Administration bill requires the Commission to make "expeditious decisions" on PGA applications.

a. What do you interpret the word "expeditious" to require?

b. What recourse would a party have if you did not act within six weeks?

c. What recourse would a party have if you did not act within six months?

12. Please provide an example, using actual data, of how the PGA mechanism in the Administration's bill would have worked in the

past year for one of the major interstate pipelines subject to FERC jurisdiction.

13. Please provide an example, using reasonable projections, of how the PGA mechanism in the Administration's bill would work each year for the next five years, for one of the major interstate pipelines subject to FERC jurisdiction.

14. Please explain how you believe the affiliated production provision in the Administration bill would work in actual practice.

a. If a pipeline is taking only 50% of an Appalachian producer's production, for example, does that mean it would not be able to pass through costs of purchases at a rate exceeding 50% for any of its own production?

b. If a pipeline is taking Canadian gas at 75% of the contract rate, how would this provision affect its other takes?

15. In order to obtain a certificate of public convenience and necessity under the Natural Gas Act, a pipeline must show that it has sufficient natural gas reserves dedicated to it to make the project economic and reliable. Sec. 202 removes the certification and abandonment authorities for deregulated natural gas. How will a pipeline be able to show it has sufficient reserves for a certificate, if it no longer has dedicated reserves?

16. What would happen to pipeline certificates for existing pipelines if the reserves dedicated to that pipeline are no longer there?

17. Please provide the Committee with estimates of the personnel and increased authorization ceilings that would be necessary to administer S. 615 in its present form.

18. Under applicable FERC laws and regulations, what penalties are there for failure to comply with the filing requirement in Sec. 301 of S. 615?

19. How would the maximum lawful price in the proposed gas cap treat production-related costs and severance taxes? If production related costs and severance taxes would be excluded, how much would they add to an interstate pipeline's average acquisition cost, assuming current FERC regulations stay in effect?

20. Under what authority is FERC able to regulate the contracting practices of intrastate pipelines, as Sec. 302 would require?

21. Sec. 302 appears to be a private contract right, but the Commission has discretionary authority to come in if it is necessary to "prevent drainage and protect the correlative rights of the person producing the natural gas involved."

a. How would the Commission get involved?

b. Would someone have to file something with the Commission?

c. What would the party have to show in order to make its case?

d. Would the State Commission have any involvement in such a proceeding?

22. What would happen in producing states with ratable take statutes if a purchaser were to invoke this new authority? Would not the Federal law override in such instances?

23. Sec. 303 of S. 615 would allow "either party to a contract for the first sale of natural gas" to abrogate a contract.

a. What, if any, sales by a producer of natural gas to an interstate pipeline would be exempt from the provision?

b. What, if any, sales by a producer of natural gas to an intrastate pipeline would be exempt from the provision?

c. What, if any, sales by a producer of natural gas to an industrial user would be exempt from the provision?

d. What, if any, sales by a pipeline to a local distribution company would be exempt from the provision?

e. What, if any, sales by an interstate pipeline to an industrial user would be exempt from the provision?

f. What, if any, sales by an intrastate pipeline to an industrial user would be exempt from the provision?

24. Sec. 401 of S. 615 gives the Commission authority to authorize intrastate pipelines, and local distribution companies, to transport gas for others.

a. What, in your opinion, is the need for this provision?

b. Why should the Federal Government get involved in these transactions which have traditionally been subject to State regulation?

phrase, and "installation, or unit" and the comma immediately preceding that phrase;

(3) in subsection (a)(2), the last sentence; and

(4) subsection (a)(3).

(f) Section 404 of the Powerplant and Industrial Fuel Use Act of 1978 (42 U.S.C. 8374) is amended by striking—

(1) in subsection (c), "new or" in the phrase "applicable to any new or existing electric powerplant"; and

(2) subsection (g).

(g) Section 701 of the Powerplant and Industrial Fuel Use Act of 1978 (42 U.S.C. 8411) is amended by striking—

(1) in the last sentence of subsection (b), "or installation";

(2) subsection (c);

(3) in the title of subsection (d), "AND EXEMPTIONS";

(4) in the first sentence of subsection (d)(1), "or any petition for any order granting an exemption (or permit)";

(5) in subsection (d)(1)(B), "or in the consideration of such petition";

(6) in subsection (f), "or a petition for an exemption (or permit) under this Act (other than under section 402 or 404),"; and

(7) subsection (g).

(h) Section 702 of the Powerplant and Industrial Fuel Use Act of 1978 (42 U.S.C. 8412) is amended by striking—

(1) in the title of subsection (a), "OR EXEMPTION";

(2) in subsection (a), "or granting an exemption (or permit)";

(3) subsection (b), and redesignating subsection (c) as subsection (b);

(4) in the first sentence of subsection (b)(1) (as redesignated), "or by the denial of a petition for an order granting an exemption (or permit) referred to in subsection (b),";

(5) in the first sentence of subsection (b)(1) (as redesignated), "such rule, order, or denial is published under subsection (a) or (b)" and inserting in its place "such rule, or order is published under subsection (a)";

(6) in the first sentence of subsection (b)(2) (as redesignated), "the rule, order, or denial" and inserting in its place "the rule or order";

(7) in the second sentence of subsection (b)(2) (as redesignated), "(or denial thereof)"; and

(8) in subsection (b)(3) (as redesignated), "any such rule, order, or denial" and inserting in its place "any such rule or order".

(i) Section 711 of the Powerplant and Industrial Fuel Use Act of 1978 (42 U.S.C. 8421) is amended by striking in the first sentence of subsection (a), "or major fuel-burning installation".

(j) Section 721 of the Powerplant and Industrial Fuel Use Act of 1978 (42 U.S.C. 8431) is amended by striking subsection (c) and redesignating subsection (d) as subsection (c).

(k) Section 723 of the Powerplant and Industrial Fuel Use Act of 1978 (42 U.S.C. 8433) is amended by striking subsection (b) and redesignating subsections (c) and (d) as subsections (b) and (c).

(l) Section 731 of the Powerplant and Industrial Fuel Use Act of 1978 (42 U.S.C. 8441) is amended by striking—

(1) "or major fuel-burning installation" wherever the phrase appears; and

(2) "title II or" in subsections (a)(1) and (g)(3).

(m) Section 745 of the Powerplant and Industrial Fuel Use Act of 1978 (42 U.S.C. 8455) is amended by striking in the first sentence of subsection (a), "from new and existing electric powerplants and major fuel-burning installations" and inserting in its place "from existing electric powerplants".

(n) Section 761 of the Powerplant and Industrial Fuel Use Act of 1978 (42 U.S.C. 8471) is amended by striking—

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(1) in subsection (a), "any existing or new electric powerplant or major fuel-burning installation" and inserting in its place "any existing electric powerplant"; and

(2) in subsection (b)—

(A) "new or" in the phrase "In the case of any new or existing facility"; and

(B) "except to the extent provided under section 212(b) or section 312(b)" and the comma immediately preceding that phrase.

REPEAL OF INCREMENTAL PRICING REQUIREMENTS

SEC. 503. (a) Subject to subsections (b) and (c) of this section, title II of the Natural Gas Policy Act of 1978 (15 U.S.C. 3341-3348) is repealed, and the items relating to title II are stricken from the table of contents of that Act.

(b) A rule promulgated by the Commission under title II of the Natural Gas Policy Act of 1978 shall continue in effect only with respect to the flow-through of costs incurred before the enactment of the Natural Gas Consumer Regulatory Reform Amendments of 1983, including any surcharges based on such costs.

(c) The Commission may take appropriate action to implement this section.

○

25. Sec. 401 of S. 615 also gives the Commission authority to authorize assignments of surplus gas by intrastate pipelines and local distribution companies.

a. What, in your opinion, is the need for this provision?

b. Why should the Federal Government get involved in these transactions, which have traditionally been subject to State regulation?

26. Sec. 403 of S. 615 is designed to move gas between a producer and a purchaser, even if the interstate pipeline previously carrying the gas is no longer a party to that transaction. Under this provision, what would happen if the following situation were to occur: Pipeline A has some old gas. It is not able to reach an agreement with the producer and the contract is not renegotiated. It is terminated. The producer then sells the gas to pipeline B or to a local distribution company. Pipeline A serves Chicago; pipeline B and the local distribution company serve New England. How will this provision get the gas to New England?

27. What recourse does a purchaser outside a producing state have, if the intrastate pipeline serving a remote field will not serve as a contract carrier?

28. Under existing law, would a pipeline have a residual utility responsibility to serve a local distribution company previously served by that pipeline, even if the local distribution company were to purchase gas directly from a producer and use Sec. 403 to force transportation of the gas to it?

a. If S. 615 were enacted, how would that responsibility change, if at all?

b. If S. 615 were enacted, would a pipeline have a residual utility responsibility to serve a direct purchaser if that purchaser's direct sale contract for some reason goes unfulfilled?

29. Please provide the Committee a detailed explanation of the manner in which incremental pricing affects the day-to-day operations of an interstate pipeline.

30. As a practical matter, are the incremental pricing requirements affecting industrial users of natural gas in today's market? Or are individual pipeline rate designs, off-system sales policies, state utility commission decisions, and the like actually more relevant than is incremental pricing in today's environment.

31. The Department of Energy has prepared a paper entitled "Analysis of Natural Gas Consumer Regulatory Reform Legislation". Please provide the Committee with your views on this analysis. Feel free to note the existence of relevant material not contained in the DOE paper and to emphasize material in the paper you think to be especially important. Where you disagree with the DOE paper, please be careful to explain clearly the origin of the disagreement.

32. How would the analysis of the impact of this legislation change, particularily with respect to prices, if Congress adopts the changes you suggested to S. 615 in your testimony of March 12.

33. The Department of Energy Acting General Counsel has prepared an opinion of the constitutionality of Federal natural gas legislation modifying private sales contracts. Please provide the Committee with your General Counsel's views of this opinion.

34. It has been asserted that the limitation on purchased gas adjustment costs for interstate pipelines contained in Sec.101(a) of S. 615 will create a bidding advantage for intrastate pipelines in acquiring gas supplies, and as a result will tend to recreate the "dual" market for natural gas that caused so many dislocations in the early 1970's. Please comment on this possibility and estimate what you think will be the magnitude of the resulting problems could be.

35. Please provide the Committee with a section-by section analysis of the applicability of the bill to entities - pipelines, distribution companies, producers and consumers - in the intrastate natural gas markets. Where there are differences in the treatment of interstate and intrastate markets please estimate the impact of such differential treatment.

36. What percentage of sales of natural gas in the United States are covered by proposed new Sec. 315 of the NGPA (amendments made by Sec. 302(a) of S. 615)? What categories of sales are left out?

a. What is the impact of this particular choice of coverage in achieving what you would regard as an acceptable solution to current problems in natural gas markets?

b. Are there categories of sales of natural gas that should not be subject to the operation of Sec. 315?

c. What are these categories and why should they be protected from the operation of these provisions?

37. Could the Commission administer the provisions of S. 615 affecting the recovery of purchased natural gas costs in a manner

consistent with the Supreme Court's holding in Hope v. FPC if it is not amended? Why or why not?

38. To what extent does proposed Sec.603(b) (added by Sec. 101(a) of S. 615) suggest retroactive regulation of natural gas purchases, since no increase in rates may take place without a Commission order, but the Commission could then "allow recovery if it determines that the costs sought to be recovered were just, reasonable and prudently incurred." (emphasis added)? How would the Commission implement this provision?

39. Please comment on the choice between continuation of the NGPA and enactment of S. 615 as introduced presuming that over the next three years:

(a) oil prices recover and increase at, say, 3% per year in real terms;

(b) oil prices remain constant in real terms; and

(c) oil prices continue to decline, perhaps to below $25 per barrel (in 1983 dollars).

40. Estimate the impact of the rollback in take-or-pay requirements proposed in S. 615 on the average purchase price of natural gas in each year after enactment. Please explain your assumptions.

41. Estimate the amount of natural gas that is likely to be involved in the calculation of the "gas cap price" in any year assuming S. 615 is enacted as introduced. Please provide the Committee with a "sensitivity" analysis of the potential for volatility in the cap under differing assumptions as to the composition of the volumes used to calculate the cap.

42. As you pointed out in your prepared testimony, "the reduction in gas costs resulting from the cap is largest for the higher cost pipelines" as a general rule. Doesn't that mean Congress is bailing out poorly managed companies, and penalizing the customers of well managed companies because they get the highest cost increases?

43. How long would it take you to gather the necessary data, to calculate, and to publish the gas cap price? It should be noted that the way S. 615 works, the cap goes into effect only "if published".

44. Congress is not known for the speed with which it enacts natural gas legislation. Be optimistic and assume S. 615 is enacted next spring. Your prepared statement indicated that the Commission would need a delay of at least 60 days to implement the passthrough limitation. That means summer, 1984. The

passthrough limitation expires January 1, 1986. Does that mean we would have only a total of 1 1/2 years of the "consumer protection" provisions under this bill?

45. In your prepared statement, you seemed to imply that the consumer protection could be illusory, at best, and contrary to the long-term interests of customers, at worst. You seemed to be saying that the passthrough limitation will simply postpone price increases due to pipeline buying practices. Doesn't that mean we could be right back into a consumer revolt in 1986 if this is passed?

46. Sec. 111(d) of S. 615 requires pipelines to file with the Commission the prices and estimated volumes of gas they will purchase. Using this information the Commission will compute the gas cap under S. 615. Do you think that this information should be certified by the pipeline or some crosschecks imposed to ensure that "estimates" don't have the effect of raising the gas cap above what it should really be? It would be tempting to estimate high when the price is high and estimate low when the price is low.

47. If controls are removed in the manner proposed by the Administration, or in any other manner, will prices rise of fall? By how much? Why?

48. If prices fall, how much will production fall?

49. If prices rise, how much will production rise?

50. Can you explain specifically and in detail why prices are not falling now?

51. Giving a broad interpretation to the Natural Gas Act and the Natural Gas Policy Act, what authority might the FERC have to remove any barriers that exist at the present time to the fall in prices? Could its authority under Sec. 601(c) of the NGPA, concerning limitations on passthroughs in the event of "fraud, abuse, or similar grounds", be interpreted to provide such authority? Could its rulemaking authority under Sec. 501(a) of the NGPA be used to rectify the situation?

52. The premise of the Administration's proposal is that the price of alternative fuels will act as a limit on the price of natural gas at the burnertip. What provisions, if any, of the Natural Gas Act or the Natural Gas Policy Act prevent the pipelines from reducing their prices to that level?

53. You indicated in your prepared testimony that alternative fuel prices act as a limit on the price of gas because a portion of the burnertip market has the capacity to switch to the alternative fuel. What portion of the burnertip market does not

have that fuel switching capability and how can those customers be assured that they will benefit from market forces which at best only apply to sales to customers with fuel switching capability?

54. Under the Natural Gas Act, the FERC already has the authority to scrutinize pipeline gas purchase practices to determine whether they are prudent and to fashion appropriate remedies if they are not. The Administration's proposal only reiterates authority which the FERC already has. Why has the FERC not used this authroity to require pipelines to purchase the least cost mix of available gas, and what additional legislation would be necessary to assure that FERC does so in the future?

55. The Administration is proposing to deregulate the price of old gas because they believe that the consumer benefits of the "old gas cushion" are being bid away on the purchase of new gas, and in particular, deregulated gas. What other alternatives are available to prevent pipelines from spending the old gas cushion on high-priced gas, and to assure that the benefit is passed through to consumers?

56. What, if any, input did you or the members of your staff have to the methodology employed by the Energy Information Administration in developing the model used to study the effect of natural gas decontrol (Part IV of the EIA study of gas decontrol)? How would the effects of the Administration's proposal vary from those projected in the Part IV study?

57. The Administration has included in its proposal an additional five cent per mcf fee to be paid to pipelines for furnishing transportation in certain instances. What will be the impact of this extra fee and how will it encourage pipelines to furnish transportation services? What rights of access and transportation do producers and distributors have under existing antitrust laws and principles?

58. So far as pipelines purchase their gas from affiliated producers, they would have an incentive under decontrol not to reduce the price paid for purchased gas, but to increase it, with obvious effects on the gas cap. What has the FERC done in the past to hold down the prices paid to affiliates and what is necessary to assure that payments for affiliated production do not exceed the payments producers under similar circumstances by non-affiliated producers?

59. Please provide the Committee with specific statutory language for the amendments suggested in your testimony.

ADDITIONAL QUESTIONS
Submitted by Senator Wendell H. Ford

1. I do not necessarily agree that gas prices should be frozen at their present levels, plus inflation. But if the Administration wants to freeze prices for consumer protection, why shouldn't the freeze be applied to the price the seller receives rather than at the price the buyer can flow through?

2. If we freeze the amount of gas purchase costs the interstate pipelines can flow through, isn't it logical that the pipelines will not buy new gas supplies except under a precedent condition that FERC approve the passthrough by the pipeline of the gas purchase price?

3. If this happens, won't we be back in the situation of FERC price controls (albeit indirectly) which created the gas shortage and brought about the need for the passage of the NGPA?

4. The Administration says that this bill will afford consumer protection from price increases by preventing the interstate pipeline companies from passing through natural gas price increases in excess of inflation. Does this same passthrough freeze apply to intrastate pipelines?

5. If we freeze the interstate pipelines' right to flow through gas price increases and leave the the intrastates with freedom to pass on price increases, will we not recreate a dual market in which the interstate pipelines can no longer compete? In other words, doesn't the Administration bill recreate most, if not all, the problems the NGPA was designed to solve?

6. Scrutiny of the bill reveals that a pipeline's automatic passthrough of purchased gas costs is restricted to that pipeline's average cost of gas in the month prior to passage plus inflation. If a pipeline has managed its business in an efficient manner and has held its purchased gas costs down, would the efficient pipeline not be at a competitive disadvantage with the high cost pipeline in acquiring new gas reserves? Would the high cost pipeline not be in a position to raid the efficient pipeline's old gas supply on January 1, 1985, when all producers could break their old gas sales contracts? I would appreciate your comment on why the Congress should reward inefficient pipelines and penalize the efficient ones.

7. A pipeline's purchased gas costs includes gas that it purchases from another pipeline. If the selling pipeline's increased rates are found to be just and reasonable by FERC, can the purchasing pipeline pass those increases through without restriction if S. 615 is enacted?

8. I will appreciate your estimate of the price fly-up that will occur when the cap is removed on January 1, 1986, and the assumptions used in making that estimate.

9. It would appear that substantial supply disruptions for interstate pipelines would occur on January 1, 1985, when producers break their old gas contracts. I will appreciate your projection of these potential disruptions on a best-and-worse case basis. What, if any, emergency measures do you suggest that Congress take to protect consumers on January 1, 1985?

March 24, 1983

C. M. BUTLER III
CHAIRMAN, FEDERAL ENERGY REGULATORY COMMISSION

RESPONSES TO ADDITIONAL QUESTIONS FOR NATURAL
GAS HEARING RECORD OF MARCH 12, 1983

Question 1

Your prepared statement provides several "assumed" ceiling prices for natural gas if S. 615 is enacted.

a. What is your best estimate of what the new maximum lawful price for natural gas would actually be?

b. Please describe the method used to derive that price.

Question 2

What would that price be if only new contracts, and not renegotiated contracts, are included?

Answer

It is easiest to answer these two questions together and to do so by beginning with the assumptions that only new contracts are included in the cap and that new contracts are negotiated at a price that corresponds to the long-term equilibrium price given current oil prices. On those assumptions, I believe that the cap would now be around $2.90 per MMBtu. This estimate is derived by taking the most recent available national average price for No. 6 high sulfur fuel oil ($23.25 per barrel or $3.72 per million Btus, for late March 1983) and subtracting from that an estimated transmission cost of $0.80 per MMBtu. This yields the long-term equilibrium field price. In practice, the gas cap contained in S. 615 might differ from this long-term level for two reasons. First, the gas cap would include renegotiated contracts as well as new ones. As I indicated in my testimony, the renegotiated price for low-priced contracts probably would tend to be below the market-clearing level, while the renegotiated price for high-priced contracts would tend to be above that level. Since the volume of low-priced gas is much larger than the volume of high-priced gas, I think that on balance the inclusion of renegotiated contracts is more likely to lower the cap than raise it. It is, however, impossible to make any reasonable estimate of the impact of including renegotiated contracts, since the impact would depend not only on the renegotiated price but also on the number of contracts that were renegotiated in each time period. Second, even if renegotiated contracts were not included, the current gas surplus probably would tend to depress the new contract price below the long-run market-clearing level. Again, however, it is not possible to make a reasonable estimate of the quantitative significance of this factor.

Two other points should be emphasized. The national average price does not necessarily reflect different prices that may prevail in regional markets. For example, alternative fuel prices tend to be higher in New York than the Texas Gulf Coast due to air quality restrictions on sulfur levels in such fuels. Therefore, the gas price New York can command should be slightly higher than that commanded by the Texas Gulf Coast if one considers only the effect of differing alternative fuel prices. Accordingly, one might find the price in New York slightly higher than the national average, and the price in the Gulf Coast slightly lower than the average. On the other hand, the price that a pipeline can pay for natural gas in the field market will also be affected by the cost of getting the gas to the burner tip, and other things being equal, a pipeline serving markets close to its source of supply can afford to pay more for gas in the field than a pipeline serving more distant markets. Over the long run, these factors should tend to balance out: in markets distant from major sources of supply, natural gas will compete with higher-valued alternative fuels, so that the net-back value of the gas in the field market will be roughly equal to its value based on competition with lower-valued fuel in burner-tip markets closer to the field market. These adjustments will require time, however, and over the period that the gas cap would be in effect, significant differences in market prices for new gas are likely to continue to exist.

Secondly, reasonable people can obviously differ about what the price of oil will be next year, or even next month. For a variety of reasons, I believe oil prices will continue to decline, perhaps to a level of $20-25 per barrel. If this forecast obtains, the national average gas price should be considerably lower than $2.90.

Question 3

If S. 615 were enacted, and if FERC did not allow any PGA costs in excess of the rate of inflation to go into effect, what is your best estimate of how it would affect residential prices paid each year for the next five years?

Answer

The limitation on PGA passthroughs imposed by S. 615 would expire in 1986. The answer to the question therefore must deal separately with three periods: the period between now and the end of 1985; the transition period from 1985 to 1986; and the period from the beginning of 1986 to the end of the five year period.

On the assumption made in the question, during the first period the price paid by pipelines' distribution company customers would increase no faster than the rate of inflation, and on some pipelines the price would increase more slowly than the rate of inflation. Since distribution costs themselves have been increasing roughly at the rate of inflation, the burner-tip price to residential consumers would increase at the rate of inflation or slower.

For the second period, the price changes would depend on whether a pipeline reached the end of 1985 with its average gas cost at the market-clearing level and with adequate reserves. The limit on PGA passthroughs assumed by this question might prevent prices on a low-cost pipeline from reaching the market-clearing level, or might prevent such a pipeline from acquiring adequate reserves. In that case, the expiration of the PGA limit might result in a significant short-term increase in gas costs.

For the third period, the renegotiation process and the market-out provision of S. 615 should enable pipelines to establish contractual price provisions that are responsive to changes in the market-clearing level. Natural gas prices therefore would depend on the price of alternative fuels.

Question 3a

How would that compare with prices if prices in excess of the rate of inflation were allowed to go into effect, as you have suggested, for the next five years?

Answer

The change in assumption would principally affect the low-cost pipelines referred to in the preceding answer. If those pipelines are able to pursue reasonable renegotiation and gas purchase practices, the transition to a reasonable market-clearing price in 1986 is likely to be much smoother.

Question 3b

How would that compare with prices under the NGPA for the next five years?

Answer

I assume that the comparison here is with Question 3a, under which the price increases in excess of the rate of inflation are allowed in some cases. On that assumption, under S. 615 prices should reach a market-clearing level in 1985 with the exercise of reciprocal market-out clauses. Under the NGPA and the price clauses in existing natural gas contracts, the price of gas immediately before 1985 is likely to be significantly above the market-clearing level unless oil prices increase substantially. The decontrol of large quantities of gas in 1985 under existing contractual deregulation clauses might then aggravate this supply-demand balance. In practice, some corrective action is likely to occur, but the timing and nature of that action -- bankruptcies, massive breaches of contracts, or renegotiation -- is impossible to predict at this time. Under existing pricing rules, it therefore is possible that prices above the market-clearing level will persist for some time after the beginning of 1985. During that time, the average cost of gas under the NGPA would be higher than it would be under S. 615.

Howard Heron

March 30, 1983

C. M. BUTLER III
CHAIRMAN, FEDERAL ENERGY REGULATORY COMMISSION

RESPONSES TO ADDITIONAL QUESTIONS FOR NATURAL
GAS HEARING RECORD OF MARCH 12, 1983

Question 4

What part of increases in natural gas prices paid by residential consumers in the last 5 years has been due to increases in purchase gas costs?

Answer

The average gas prices paid by residential heating customers have increased an average of about 19% per year over the last five years. The change in purchased gas costs over this same time period would account for an average increase of about 13% per year in these same rates. The basis of these percentages is shown by the attached table.

Question 5

What part of increases has been due to factors other than purchase gas costs which are ordinarily included in general rate filings?

Answer

From 1976 to 1981 interstate pipelines' sale for resale prices rose from 100¢ per Mcf to 298¢ per Mcf. This increase, plus a moderate increase in distributors' margins, was passed on to gas consumers. The greatest part of the 198¢ per Mcf increase in pipeline selling prices was accounted for by purchased gas costs. Pipelines' margins, or the amount they charge for transmission, storage, and a small volume of production, rose from an estimated 46¢ per Mcf in 1976 to an estimated 75¢ per Mcf in 1981, or by 29¢ per Mcf. About 2/3rds of this increase in pipelines' margins can be accounted for by general inflation, increased taxes, and the higher value of compressor fuel. The remaining 1/3 represents chiefly operating cost increases, which were larger than can be explained by inflation or other special inflationary forces. See the attached March 8 memorandum for detailed estimates of the increase in pipeline margins.

Attachment to Question 5

March 8, 1983

MEMORANDUM TO: Bob Means

FROM : Henry Canaday

SUBJECT : Pipeline Cost Increases

This memo presents estimates of the components of interstate pipelines' cost increases from 1971 to 1980.

1. Overall Gas Price Increases

From 1967 to 1981 average consumer gas prices rose nearly six-fold, from 57 cents per Mcf to more than $3.50 per Mcf. As shown in Table 1, the most important component of this increase was the increase in domestic gas prices at the wellhead. Wellhead gas prices rose more than ten-fold, from 1967 to 1981, most of this increase occurring since the passage of the Natural Gas Policy Act, in 1978.

Table 1

Overall Interstate Gas Price Increases
(¢ Per Mcf)

	Pipeline Purchases From Domestic Producers	Indicated Trans mission Margin 1/	Pipeline Sale For Resale Price	Indicated Distribution Margin	Average Consumer Price
1967	17.24	18.36	35.6	21.4	57
1968	17.32	18.01	35.33	19.67	55
1969	17.62	18.77	36.39	20.61	57
1970	18.11	20.45	38.56	20.44	59
1971	19.23	23.1	42.33	20.67	63
1972	20.69	25.38	46.07	21.93	68
1973	22.62	27.36	49.98	23.02	73
1974	26.71	34.19	60.9	28.1	89
1975	34.37	47.43	81.8	37.2	119
1976	47.88	52.13	100.01	46.99	147
1977	69.5	63.01	132.51	45.49	178
1978	83.91	66.91	150.82	47.18	198
1979	121.6	68.22	189.82	44.18	234
1980	163.41	88.69	252.1	38.9	291
1981	214.96	83.18	298.14	52.86	351

Source: EIA/FPC Form 11 Summaries.

1/ See below for re-estimated margin.

Other components of consumer gas prices also rose significantly, however. Pipelines' sale for resale prices increased by the wellhead price increase, plus a bit more. The difference between consumer prices and pipeline resale prices reflects distributors' charges. This component also rose, but less than the rise in pipeline charges.

The importance of wellhead price increases in driving up consumer prices is well understood. And the rise in the distribution margin appears to be in line with general inflationary trends. But the apparent increase in the "indicated transmission margin" looks excessive, even after inflation is recognized. This memorandum thus refines the estimate of the transmission margin and looks at the costs which lie behind it.

2. Re-estimated Margin

The "indicated transmission margin" rose from about 20¢/mcf in 1971 to almost 90¢/mcf in 1980-81, or more than 300 percent.

But this "indicated transmission margin" is a very rough approximation of interstate pipelines' transmission charges, since it is based on the readily available difference between sale for resale prices, and average domestic field prices.

I adjusted this margin in two ways. First, I used EIA estimates of the average cost of all interstate pipeline gas purchases, including imports. This increased 1980's gas costs by about 24¢/mcf, and reduced the implied margin by the same amount. 1/

But interstate pipelines have consistently recovered a substantial portion of their purchased gas costs not currently, but after a lag, as actual costs become known. So I made a second adjustment: I assumed that each year's resale price recaptured only an estimate of that year's gas costs equal to a weighted average of past and current actual gas costs. 2/

The result is an estimated "margin for interstate pipeline services". It is intended to indicate the charges customers pay for each year's pipeline services, though they may have to pay some of the gas costs in a later year.

1/ See Table 3 for alternate ways of estimating transmission margins; imports did not add appreciably to average gas costs in 1971.

2/ Each year's estimate is weighted 3/4ths by actual gas costs for that year, and 1/4th by the prior year's costs. Under very simple assumptions, this approximates a pipeline filing a PGA every six months that forecasts only half the actual increase in prices, but getting the difference back immediately in its next PGAs. According to former OPPR staff, this is a reasonable, though hardly precise, assumption. The assumption of a partial current pass-through increases the margin estimate. See Table 3.

In addition to transmission, the margin reflects a small volume of pipelines' own production (cost-based mostly), some storage and gathering costs, as well as minor amounts of distribution. But it gets as close as we quickly can to the activities interstate pipelines actually perform, and charge for under cost-based regulation.

From 1971 to 1980 this estimated margin for interstate pipeline services rose from 22.59¢/mcf to 77.21¢/mcf, or by about 240 percent.

3. Cost Components of Increased Margin: General Inflation

Table 2 summarizes the cost components of the increase from 1971 to 1980. It was estimated from the 1980 edition of EIA's Statistics of Interstate Natural Gas Pipeline Companies, which covers the Major A and B lines, plus some adjustments and judgments. 1/

Table 2 and the succeeding text break down increased costs into three general sorts: those which can be explained by general inflation; other special "Forced" increases; and cost increases which cannot be readily explained by inflation or special forced increases.

General inflation, measured by the GNP deflator at 86 percent over this period, accounts for about 16-1/2¢ of the increase. About 6¢ of this increase was for current operating costs, Administration, Sales, other Operating & Maintenance Costs, and so forth. These current operating costs would be expected to reflect general price and wage increases in the economy.

General inflation also affects capital charges, under which I have included Net Income, Interest, and Depreciation, in less simple ways. Each year's inflation rate may be roughly incorporated in rates of return for equity and new debt. 2/ Applied to a constant rate base, that would mean a proportionate increase in those capital charges. Though this relationship is only partial, several other factors worked to keep total capital charges rising with inflation rate.

First, though pipelines were delivering slightly less gas, they expanded their investments, chiefly for storage capacity, gathering lines, and stored gas. New fixed plant is bought at increased prices, and the value of stored gas rises, of course, with increased prices. Pipelines' net utility plant rose in value from $12.3 billion in 1971 to $14.7 billion in 1980. And the value of base and working gas for these pipelines rose by about $1.5 billion over the same period. 3/

1/ See Table 4 for detailed derivation.

2/ Inflation does not affect old fixed interest debt costs, of course. But much if not most debt financing would be turned over during a ten-year period.

3/ Asset Tables, Statistics of Interstate Natural Gas Pipeline Companies, EIA, 1980. [Hereinafter cited as Statistics.]

Table 2

REVISED ESTIMATES OF TRANSMISSION COST INCREASES, 1971-80

	¢/Mcf
Estimated "Margin for Interstate Pipeline Services," 1971	22.59¢
General Inflation:	
Admin., Gen., Sales, Customer & Distribution Operating Costs	1.59
Other Operating and Maintenance Costs for Transmission & Storage	3.35
Production Operating & Maintenance Costs	1.21
Capital Charges (excluding Income Taxes)	10.53
Subtotal	16.68¢
Other "Forced" Cost Increases:	
Compressor Fuel	5.35
Non Income Taxes	3.52
Income Taxes	5.30
Volume Decline on Fixed Costs	2.45
Subtotal	16.62¢
Above General Inflation or Forced Cost Increases:	
Admin., Gen. Sales, Customer & Distribution Operating Costs	3.75
Other Operating and Maintenance Costs for Transmission & Storage	7.93
Production Operating & Maintenance Costs	6.89
Capital Charges	0.58
Subtotal	19.15¢
71-80 Estimated Shift away from Resale Customers:	-(0.85¢)
Subtotal - "Explained 1980 Margin":	74.19¢
Other Factors and Errors in Estimation:	3.02¢
Total--Estimated "Margin for Interstate Pipeline Services", 1980:	77.21¢

Source: Estimated from *Statistics of Interstaste Natural Gas Pipeline Companies*, EIA, 1980, as indicated in text.

Second, long-term debt was about 59 percent of capitalization in 1971, but only 41 percent in 1980. This shift toward equity would mean higher returns overall, and has a major effect on income taxes (see below).

4. Other "Forced" Increases

The rise of the value of gas explains the actual increase in compressor fuel expenses, plus a bit more. Gas used by pipelines decreased by about 20 percent from 1971 to 1980, probably due to throughput decreases on most of the pipeline system. Nevertheless, the increased value of compressor fuel added more than 5¢/mcf to pipeline charges.

Non-income taxes also rose by considerably more than general inflation. These taxes are usually based on a fraction of sales or investment. Sales taxes would rise with higher prices and some tax rates may have changed over the period. In either case, these increases appear "forced" on pipelines by circumstances and added about 3-1/2¢/mcf.

Income taxes would rise with the higher returns forced by inflation, the shift toward equity in capital structure, and any change in tax rules. Federal tax rules did not grow generally harsher during the 1970's, but the combined effects of other factors apparently swamped favorable changes in tax credit and depreciation rules. 1/ The resulting increase added 5¢/mcf to pipeline margins.

The volume of gas sold by major interstate pipelines dropped significantly from 1971 to 1980. If an estimate of transported gas (to which costs are also effectively allocated) is included, the overall decline in transmission was about 7 percent. This decline explains an increase of 2-1/2¢/mcf in fixed costs, under simple assumptions. 2/

Taken together, the various increases (apart from general inflation) apparently forced on pipelines, explain about 16-1/2¢ of the margin for pipeline services. Together with general inflation, these forced increases in the margin account for about 33¢, or roughly 2/3rds of the estimated increase in the margin.

1/ Most of the apparently easier rules on credits and depreciation were intended, and had the effect, of offsetting the increase in "real" tax burdens that comes from historical cost accounting. For a very mature, capital intensive, and non-growing industry, the historical cost effects may have been stronger than the offsets.

2/ See Table 4.

5. Above Inflation Increases

A series of pipeline cost components rose by substantially more than can be readily explained by inflation, gas price increases, or taxes.

Excluding taxes, capital charges rose only about a half penny more than could be explained by general inflation. Given the variety of forces at work here and general estimating uncertainties, that doesn't seem worrisome. Virtually all operating cost categories, on the other hand, increased substantially faster than general inflation.

Administrative, General, Sales, Customer, and Distribution Expenses rose by a total of 109 percent after adjusting for inflation, adding another 3.75¢/mcf. 1/ These expenses are mostly for salaries and office expenses, supplies, insurance, outside services, rents and so forth. The above-inflation increase was spread generally throughout most of these items. 2/

Other Operating and Maintenance Expenses for Transmission and Storage rose by 110 percent, after adjusting for inflation, accounting for about 8¢ in the margin increase. These items are also for a mix of salaries and equipment, and supplies, but the kind that are bought in or near gas fields or pipelines. The increase in storage during the 1970's accounts for only a slight portion of this increase. Storage and Processing expenses rose 108 percent, after inflation, while Transmission (excluding fuel) expenses increased almost as rapidly, 95 percent after inflation. 3/

Production Operating and Maintenance costs rose by the sharpest rate, 262 percent, after the influence of general inflation is deducted. This cost category is a mix of expenses incurred by pipelines either for their own production, or in gathering and product extraction for purchased gas. It excludes purchased gas costs and should, under the cost-based rule which generally applied over the period, reflect actual costs paid by pipelines.

Because production costs include items that gas producers also buy, the increase may reflect the scarcity bidding for many field supplies and services that followed the gas price

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1/ Table 4.

2/ Table 12, Statistics.

3/ Table 12, Statistics; percentages here are total, not per unit.

windfall. Thus, though high, the production cost increase may also have been partly "forced" on pipelines by energy market conditions. No adjustments have been made here.

In total, the "above-inflation" cost increase boosted the unit margin for interstate pipeline services by about 19¢ per mcf, or about a third of its total increase.

6. Shift Away from Resale

The estimate of the margin for interstate pipeline services nets estimated gas costs against Sale For Resale Prices. It is thus really a margin for the portion of pipeline activities devoted to the transactions which are Federally regulated. Unit Costs, on the other hand, are pipeline-wide, and include direct sales, and other unregulated transactions. In 1971 the "all-sales" price charged by pipelines was slightly lower than the sale-for-resale price, while in 1980 it was slightly higher. 1/ The total shift was less than 1¢/mcf, and an adjustment is shown in Table 2.

7. Explained Increase and Errors in Estimation

Examination of the unit cost figures accounts for about 95 percent of the increase in pipeline margins estimated from average gas costs and resale prices. Considering the different purposes and definitions of the two sources, it is fairly close. But the remainder points up the imprecision in the estimates. The major uncertainties likely stem from one of several causes:

- Cost Recovery Lags. Resale prices reflect anticipated cost and volume conditions, while the unit cost increases reflect actual costs and volumes. I have adjusted only, and only very crudely, for the tendency of gas costs to increase faster than expected.
- Capital Cost Allocation. Apart from depreciation and taxes, most capital charges are reported in Statistics only on a corporate-wide basis. I have allocated interest and net income to pipeline operations in the same proportion net utility plant bears to net long-term assets.

1/ See Columns 4 and 5 of Table 3.

- Transportation Volumes. Major A & B pipelines report sales, excluding sales to each other. But the net gas volumes transported by these pipelines (that is, not for each other) could only be estimated judgmentally by knowledgeable OPPR staff. Uncertainties here would affect unit margin calculations.

8. Other Mentioned Factors

Several special resons why pipeline charges rose faster than one would have expected have been mentioned. To summarize:

- Volume Declines. My estimate of the 2-1/2¢ attributable to volume is based on the simple assumption that all capital charges would have totaled the same (and therefore would have risen in unit terms), while all operating costs would have declined (and therefore stayed the same in unit terms) with volume declines. Certainly some operating costs, like maintenance, are partly fixed -- but not necessarily for a longer period than the interstate pipelines anticipated supply problems. On the other hand, some capital costs, including new construction, net income and income taxes, are partially responsive to declines in volume. I don't see that detailed scrutiny of these more complex relationships would change the estimate much.

- Fuel Costs. I have explicitly recognized the major influence of increased gas value on transmission compressors. Compressor fuel for storage facilities would account for about one-tenth of a cent of the above-inflation increase in operating costs for storage and transmission. 1/ The increased value of gas in base or working storage is a significant reason for increased capital charges, already reflected in the Table 1 estimates. "Line-Pack" or gas in the pipeline is a current asset, whose increased value is trivial in relation to total assets or charges.

- LNG Facilities. There were no operating costs reported for these pipelines for LNG facilities from 1971 to 1980, so this factor is not reflected in the cost increases. No base load LNG facilities are in the capital accounts either. LNG expenditures may be affecting capital charges if they are part of the approximately $500 million increase

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1/ See Table 12, Statistics.

in Construction Works in Progress from 1971 to 1980, or if the $129 million writeoff of extraodinary items in 1980 included dead LNG facilities. But, the way I have estimated capital charges, the write-off isn't included, and the effects of LNG on CWIP would explain only a small portion of the modest rise in capital charges. Minimum bills for ongoing or abandoned LNG facilities may be paid by some pipelines. But this would account for a portion of the increase in purchased gas costs, not transmission margins. And some planning and preparation for LNG facilities may be behind the increase in Administrative and General expenses. But it is difficult to credit this factor with much of the 109 percent increase in real expenses for these items.

- Taxes. As noted, all taxes increased sharply and explain a significant portion of the increase in pipeline margins.

- Looking Harder for Gas. Deeper or more difficult drilling efforts could help explain the portion of the increase in production costs attributable to pipelines' own supply efforts. But "pure" exploration and development expenditures are a trivial fraction of the increase in production operating costs. It's more likely that the increase in this category may trace to the hyper-inflation in the market for gas-field lines and services, and the significant increase, 37 percent, in the total mileage of field lines reported by the pipelines from 1971 to 1980.

ORA
HC/rmc

QUESTION 4

Year	(1) Average Gas Price to Residential Heating Customers 1/ ($/Mcf)	(2) Increase Over Prior Year		(3) Interstate Pipeline Average Purchased Gas Cost 2/3/ ($/Mcf)	(4) Increase Over Prior Year ($/Mcf)
		($/Mcf)	(%)		
1977	2.26			0.90	
1978	2.63	0.37	16.4	1.05	0.15
1979	3.23	0.60	22.8	1.42	0.37
1980	3.95	0.72	22.3	1.97	0.55
1981	4.56	0.61	15.4	2.40	0.43
1982	5.43	0.87	19.1	3.02	0.62
5-yr. Increase		$3.17/Mcf			$2.12/Mcf
5-yr. Increase (Average per Year)			19.2%		

1/ Data source: Monthly Energy Review, DOE/EIA, February 1983, annual average prices calculated from monthly data obtained from Bureau of Labor Statistics survey; average price for 1982 calculated from available monthly data through October 1982.

2/ Data source: 1977-1981, FERC Form 2, "Statistics of Interstate Natural Gas Pipeline Companies - 1981", For Major Class A & B Pipelines; FERC Form 11 - 1982.

3/ Includes purchases from other pipelines. We estimate that removal of purchases from other pipelines would lower the unit cost by 12¢-18¢/Mcf.

Note: Of the 19.2% average increase in residential prices, the increase in purchased gas costs would account for an average increase in residential rates of about 13% ($2.12/$3.17 x 19.2% = 12.8%).

TABLE 3

[illegible] 1967 TO 1981

(In $/[illegible])

	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	All-Supply [illegible] Spread	All-Supply Sales Spread	Average [illegible] Costs	[illegible] Margin	[illegible]
'967	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
968	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
'969	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
970	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
971	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
972	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
973	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
974	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
975	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
976	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
977	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
978	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
979	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
980	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
981	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

Col. 1 .. [illegible]

Col. 2 .. [illegible]

Col. 3 .. [illegible]

Col. 4 .. [illegible]

Col. 5 .. [illegible]

Col. 6 .. Col. 4 – [illegible]

Col. 7 .. Col. 4 – [illegible]

Col. 8 .. Col. 5 – [illegible]

Col. 9 .. [illegible]

Col. 10 .. Col. 5 – Col. 9; [illegible]

Col. 11 .. Col. 4 – Col. 9; [illegible]

Question 6

The consumer protection provision in the Administration bill relating to purchased gas cost does not prohibit a pipeline from including increases in purchased gas costs which exceed the limitation in a general rate filing.

a. Under current FERC regulations, as interpreted by the courts, can a pipeline include increases in purchased gas costs in a general rate filing?

b. If S.615 were enacted, would it affect a pipeline's ability to include increases in purchased gas cost in excess of the allowed rate for purchased gas (as defined in S.615) in a general rate filing, if denied under passthrough under new Sec. 603?

Answer

a. A pipeline may currently include increases in purchased gas costs in a general rate filing under certain conditions. A pipeline can elect between two types of filings to reflect a change in its purchased gas costs. The Commission's regulations provide at 18 C.F.R. §154.38(c)(ix) the following:

> (ix) Election of a PGA clause. A natural gas pipeline company shall elect once every three years whether to recover all changes in purchased gas costs either through general rate filings made under §154.63 or through filings made under a PGA clause prescribed in this paragraph.

Therefore a pipeline company can reflect a change in purchased gas costs in a general rate filing under section 4 of the Natural Gas Act if it is not currently using a PGA clause to recover purchased gas costs. In addition, a pipeline which has elected to use a PGA clause may recover changes in purchased gas costs through a general section 4 rate filing if it makes a showing of financial need (18 C.F.R. §154.38(d)(4)(ix)).

b. S.615, as presently drafted, provides in proposed section 603 exclusive procedures for recovery of purchased gas costs in excess of the "allowed rate for purchased gas." This is reflected in the following language of section 603:

> "Notwithstanding section 601(c) of this Act [Natural Gas Policy Act], for the purposes of sections 4 and 5 of the Natural Gas Act, * * * the part of a pipeline's rate that reflects purchased gas costs may not exceed its allowed rate for purchased gas costs, except as provided in subsection (b)."

This language restricts our consideration of the excess purchased gas costs to proceedings specified in subsection (b) and, therefore, would preclude the Commission from subsequently approving the costs in a general section 4 or 5 rate case.

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, after review, any or all of a pipeline's purchased gas ost increase is ultimately granted, would the pipeline get to ecover the full cost of financing (including interest cost) hich it incurred while awaiting a FERC decision?

nswer

The bill does not specifically address whether the Commission could allow recovery of such costs. As I indicated in testimony, it is unclear whether pipelines could recover actually incurred costs retroactively from the date of a Commission decision permitting recovery to the date of incurrence. Obviously, the same uncertainty exists as to financing costs incurred during that period of time. Assuming that S. 615 is clarified to allow such retroactive charges, however, it is possible that the Commission could determine that such recovery were "necessary and appropriate" under proposed NGPA section 603(b). It would be helpful to the Commission in implementing this section for the Senate to clarify this point in the legislative history.

Question 8

The Administration bill requires the Commission to "allow recovery (of the full PGA) if it determines that the costs sought to be recovered were just, reasonable, and prudently incurred." Under the existing law, a pipeline's purchases are presumed to be prudent; the person challenging those purchases has the burden of proof. Would S. 615 change that burden?

Answer

While S.615 does not specify where the burden of proof would lie in a proposed section 603(b) proceeding, it does require the Commission to make affirmative determinations that the costs are just, reasonable and prudently incurred. This would appear to place the burden on the pipeline to demonstrate that its purchases are prudent. Currently, the Commission's inquiry in a PGA proceeding is of a limited scope and is designed to test only each pipeline's purchased gas adjustment filing. Clarification of the burden of proof issue in the legislative history would be helpful to the Commission's implementation of the bill.

Question 9

The Administration bill requires the Commission, in making the determination of whether costs were prudently incurred, to "consider the reasonable availability of lower cost supplies to the pipeline and the necessity of such costs for the pipeline to render adequate service to its existing customers."

a. What factors would the Commission have to consider to make such a determination?

b. Do you have sufficient information available today to make such a determination? If not, what additional information would be necessary?

c. How would the Commission know what supplies were available?

Answer

a. and b. Such a determination would require information about the market conditions in which a pipeline purchased gas. For example, if it were a sellers' market, pipelines would bid-up the price of gas. A reasonable least cost strategy in such a market might produce different results than if applied in a less active gas market (i.e., where the demand was not as great). In order for the Commission to determine the reasonable availability of lower cost supplies, it would also need information on deliverability from existing wells. The Commission would also have to have information as to capacity on lines available to deliver gas from existing wells.. It should also be advised of wells delivering gas from the same producing horizons to other pipelines to avoid drainage problems which might result from an otherwise reasonable least-cost strategy. (Compare, in this connection, the answer to Question 21.) For it to determine the necessity of gas acquisition costs to render adequate service to existing pipeline customers, the Commission would need aggregate demand projections. The Commission does not now have the information needed to make such a determination.

c. The Commission could require the pipelines to submit this information.

Question 10

As a matter of law, how would the "adequate service" standard be related to the current case law interpretation of "adequate service" under the Natural Gas Act?

a. For example, would "adequate service" include industrial curtailments in extremely cold weather?

b. Would it include the pipeline's ability to meet not only the present but the reasonably foreseeable requirements of the pipeline's existing customers?

Answer

a. and b. A pipeline must comply with the delivery obligations set forth in its certificate of service. Such conditions are not at issue when there is an abundance of gas supply. When there is a shortage of supply and a pipeline is forced to curtail service to its gas customers, the conditions of service become critical. Service conditions, although established along general guidelines, vary from pipeline to pipeline. It is possible that gas service to an industrial customer could be curtailed under certain circumstances. However, the meaning of "adequate service" is not set forth in the bill or the section-by-section analysis. Absent further clarification in the legislative history, the Commission would rely on the precedents that have been developed in implementing section 7(a) of the Natural Gas Act. Adequate service to existing customers can be interpreted in the case of distributor customers to require adequate gas supplies to provide the authorized level of service under existing rate schedules and certificates, which can reflect the foreseeable needs of all customers, including low priority industrial uses. The direct impact on industrial users during cold weather would, of course, depend on the distribution companies' curtailment policies.

Question 11

The Administration's bill requires the Commission to make "expeditious decisions" on PGA applications.

a. What do you interpret the word "expeditious" to mean?

b. What recourse would a party have if you did act within six weeks.

c. What recourse would a party have if you did not act within six months.

Answer

Since no definition of the term "expeditious" is provided in the Bill, one must resort to its plain - i.e., dictionary - meaning. That meaning is "efficient and speedy; prompt." Since section 603(b) requires a hearing and the factors to be reviewed by the Commission 1/ are relatively complex, proceedings under section 603(b) could be fairly time-consuming.

It is impossible to predict with assurance how much time such proceedings would take, but six weeks would seem to be excessively optimistic, and six months more probable. If a party were dissatisfied because the Commission moved too quickly, its recourse would presumptively be to the Court of Appeals and the "substantial evidence" test. If a party was aggrieved because the Commission was moving too slowly, its recourse would be a mandamus action in federal court.

1/ The "least cost mix" standard creates some practical problems, at least as to the initial special proceeding for each pipeline. Pipelines universally obtain gas from many wells under many contracts. Inventorying these and the takes from or under them should not be too difficult, but review of each pipelines' rationale for its mix could be difficult. For example, can the Commission take account of shifting mix, as old gas is depleted and the weighting of new gas in average cost increases? Or, can the Commission take account of drainage problems that affect the cost of the mix? Other complications are sure to arise.

Question 12

Please provide an example, using actual data, of how the PGA mechanism in the Administration's bill would have worked in the past year for one of the major interstate pipelines subject to FERC jurisdiction.

Answer

Total purchased gas costs reported by the 35 major interstate pipeline companies during 1982 amounted to $42,200 million for 13.99 trillion cubic feet (Tcf) of natural gas; the average purchase cost was $3.016 per thousand cubic feet (Mcf). Total 1982 purchased gas costs reported by Tennessee Gas Pipeline Company, a Division of Tenneco, Inc. (Tennessee) amounted to $3,171 million for 1.11 Tcf of natural gas; the average purchase cost was $2.865/Mcf.

If the Administration Bill's PGA mechanism had been in place during 1982, $627 million (19.8%) of Tennessee's actual 1982 purchased gas costs would have exceeded the limitation on purchased gas adjustments applicable to Tennessee; the average purchased gas allowed rate for Tennessee would have been $2.299/Mcf. As such, these excess costs would become subject to the provision of new NGPA Section 603(b), Recovery of Additional Purchased Gas Cost, which requires the Commission to allow recovery if it determines that the costs were just, reasonable, and prudently incurred.

QUESTION No. 12

Footnotes to Table

1/ Form 11, "Natural Gas Pipeline Company Monthly Statement", filed by interstate pipeline companies whose sales-transportation-storage exceed 50 Bcf per year.

2/ Each month's adjusted national rate is calculated by multiplying the previous month's adjusted national rate by the NGPA inflation factor.

3/ Each month's adjustment amount is calculated by subtracting the current adjusted national rate from the previous month's adjusted national rate.

4/ Each month's Tenneco purchased gas allowed rate is calculated by adding the current month's adjustment amount to the previous month's allowed rate.

5/ The unit cost impact is calculated by subtracting the Tenneco allowed rate from the corresponding actual unit cost paid by Tenneco (Form 11) for a particular month.

6/ The total cost impact is calculated by multiplying the actual Tenneco volume purchased (Form 11) by the corresponding unit cost impact for a particular month.

TABLE

TRENDS IN PIPELINE CHARGES, 1971 TO 1980

	Millions of Current $	¢ Per Mcf	1971 Inflated to 1980 Price Levels 1/		1980 Millions of Current $	¢ Per Mcf	% Increase, Inflation Adjusted	Inflation & Volume Adjusted 12/
Operating Costs: 3/								
Non-Income Taxes	$ 213.8	1.551¢	5.067¢	9/	$ 646.9	5.067¢	NA	
Compressor Gas	129.2	0.937	7.965	10/	803.1	6.291	NA	
Admin., Gen., Sales, Customer, & Distribution	254.7	1.848	3.437		910.1	7.101	109%	
All Other Operating & Maintenance Costs for Transmission & Storage	536.8	3.895	7.245		1,937.7	15.170	110%	
Subtotal	$1,134.5	8.232¢	23.714¢	11/	$ 4,305.8	33.729¢		
Production Operating Costs:	194.3	1.410	2.623		1,214.1	9.510	262%	
Subtotal: .Operations	$1,328.8	9.642¢	26.337¢	11/	$ 5,519.9	43.239¢		26.337¢
Capital and Related Charges 3/								
Net Income	$ 563.2	4.086¢	7.600¢		$ 925.0	7.246¢	(5%)	
Fed. and Other Income Taxes, and Net Tax Provisions	365.8	2.655	7.959	9/	1,016.0	7.959	NA	
Interest on Utility Operations	497.1	3.607	6.709		823.6	6.452	(4%)	
Depl., Depr., & Amortization	626.9	4.549	8.461		1,232.1	9.651	(14%)	
Subtotal: Capital Charges	$2,053.1	14.897¢	30.729	11/	$ 3,996.7	31.307¢		33.175¢
Total Charges	$3,381.9	24.538¢	57.066	11/	$ 9,516.6	74.546¢		59.512¢ 11/
Net Sales (bcf/yr.) 4/	13,282				11,646			
Estimated Net Transported (bcf/yr.) 5/	500				500			
Total Throughput	13,782				12,766 8/			

Notes on Assumptions, Sources, Derivations.

1/ By GNP Deflator, unless otherwise noted: 86% increase, 1971 to 1980.

2/ From Statistics of Interstate Natural Gas Pipeline Companies ..., 1980, operating costs include all non-capital charges listed in 1971-80 summary, except Depreciation, Depletion, Amortization, Income Taxes, grouped under "Capital-Related Charges, below.

3/ Basically, Net Income, Income-Related Taxes, and Interest and Depletion, Depreciation, Amortization. Interest is Total interest, times fraction of Net Fixed Assets in Utility Operation. Net Income is Total Net Income, less Net Income from Nonutility operations, plus Interest for Non Utility Operations.

4/ EIA, major A&B Sales, less Intercompany Transactions.

5/ Judgemental estimate, OPPR Staff.

8/ Includes an allocation (90%) of "lost and unaccounted for" gas, 621 bcf/yr.

9/ Actual Increase in Taxes.

10/ Inflated by 8.5 increase in interstate gas supply price, 1971 to 1980.

11/ Total of Actual Inflation adjustments, as made.

12/ Operating Costs same, Capital Charges divided by 1971 Throughput.

QUESTION 12

	Form 11 1/ Actual Purchase Gas Costs M$	MMcf	$/Mcf	Sec. 271.102 NGPA Inflation Factors	Adjusted National Rate 2/ $/Mcf	Adjustment 3/ Amount $/Mcf	Tenneco Purchase Gas Allowed Rate 4/ $/Mcf	Unit Cost Impact 5/ $/Mcf	Total Cost Impact 6/
1981 (33 cos)									
Dec. Total	3,809,000	1,435,000 (Nat'l Rate)	2.654						
Tenneco	233,025	105,796	2.203						
1982 (35 cos)									
Jan. Total	3,925,000	1,450,000	2.707	1.00767	2.674	0.020			
Tenneco	264,754	95,595	2.770				2.223	0.547	52,290
Feb. Total	3,609,000	1,292,000	2.793	1.00690	2.692	0.018			
Tenneco	253,155	89,176	2.839				2.241	0.598	53,327
Mar. Total	3,645,000	1,365,000	2.670	1.00690	2.711	0.019			
Tenneco	278,439	102,785	2.709				2.260	0.449	46,150
Apr. Total	3,605,000	1,251,000	2.882	1.00690	2.730	0.019			
Tenneco	235,902	87,355	2.700				2,279	0.421	36,776
May. Total	3,591,000	1,284,000	2.797	1.00311	2.738	0.008			
Tenneco	304,566	113,358	2.687				2.287	0.400	45,343
Jun. Total	3,378,000	1,162,000	2.907	1.00311	2.747	0.009			
Tenneco	270,747	102,944	2.630				2.296	0.334	34,383
Jul. Total	3,241,000	1,069,000	3.032	1.00311	2.755	0.008			
Tenneco	227,746	66,758	3.412				2.304	1.108	73,968
Aug. Total	3,101,000	1,013,000	3.061	1.00447	2.768	0.013			
Tenneco	273,377	89,340	3.060				2.317	0.743	66,380
Sep. Total	3,159,000	1,029,000	3.070	1.00447	2.780	0.012			
Tenneco	263,752	85,640	3.080				2.329	0.751	64,316
Oct. Total	3,469,000	1,079,000	3.215	1.00447	2.792	0.012			
Tenneco	254,454	91,538	2.780				2.341	0.439	40,185
Nov. Total	3,385,000	1,017,000	3.328	1.00445	2.805	0.013			
Tenneco	266,531	87,619	3.042				2.354	0.688	60,282
Dec. Total	4,092,000	983,000	4.163	1.00445	2.817	0.012			
Tenneco	277,403	94,762	2.927				2.366	0.561	53,161
Grand Total	42,200,000	13,994,000	3.016						
Tenneco	3,170,826	1,106,870	2.865						626,561

Question 13

Please provide an example, using reasonable projections, of how the PGA mechanism in the Administration's bill would work each year for the next five years, for one of the major interstate pipelines subject to FERC jurisdiction.

Answer

The accompanying table displays a five-year projection of PGA prices for two pipelines, one with high purchased gas costs and one with relatively low costs. The high-cost pipeline is based principally on data for Columbia Gas Transmission Company; the low-cost pipeline is based principally on Kansas-Nebraska Natural Gas Company data. However, limitations on the available data made it necessary to use estimates for some purposes; the projections therefore should not be viewed as predictions of future gas costs for Columbia or Kansas-Nebraska even on the assumptions set out below.

Kansas-Nebraska's gas costs are exceptionally low. The low-cost pipeline in this illustration thus serves primarily to define one extreme limit of S. 615's impact on PGA prices. Columbia's gas costs are more typical of the majority of interstate pipelines, and the high-cost pipeline therefore probably is more representative of the average impact of the bill.

The high cost pipeline has an early 1983 gas cost of $3.93 per MMBTU, corresponding to the weighted average cost of gas purchased by the Columbia Pipeline. The initial cost used for the low-cost pipeline is $2.06 per MMBTU, corresponding to the average cost for the Kansas-Nebraska Pipeline. For comparison, the weighted average purchased gas cost of the nation's twenty largest interstate pipelines was $3.13.

The driving influence behind purchased gas costs under the S. 615 will be the prices of renegotiated contracts. For these projections, the following assumptions were used:

- Contracts are renegotiated beginning on the assumed date of enactment, 7/1/83, accelerating until 7/1/84, at which time half of all preenactment contracts are renegotiated. The rate of renegotiation then declines. By the time the market-out clause takes effect on 1/1/85, 85% of all contracts are renegotiated. All remaining preenactment contracts are marketed out by 7/1/85.

- The price paid for gas under renegotiated contracts on the date of enactment is halfway between the original contract price at that time and the market price. Newly renegotiated prices then move steadily toward the market price. After the market-out date, 1/1/85, all new contracts are at the market price.

- After a contract is renegotiated, its price increases at the rate of inflation.

- Ten percent of any remaining pre-enactment contracts expire each year and are replaced by new contracts at the market price. Ten percent of renegotiated "old gas" contracts are also replaced each year due to the depletion of "old gas" reserves.

- The market price is assumed to be equal to the BTU-equivalent price of high-sulfur residual oil, adjusting for transmission and distribution costs. This market price is currently estimated at $2.92 per MMBTU. Oil prices are assumed to remain constant in real terms, and annual inflation is assumed to be 8% over the five year period. The market price then reaches $4.33 by 1/1/88 in nominal dollars; in constant 1982 dollars the 1988 price would continue to be $2.92.

- The gas cap price is assumed to be equal to the market price.

- The quantity of gas purchased from other pipelines remains constant over the five years, with the price equal to the average price for direct purchases from producers plus a transmission fee which remains constant in real dollars.

- Passthrough of purchased gas costs is limited until 1/1/86 by Sec. 603 of the S. 615, which specifies the limit to be the PGA at the date of enactment, plus an inflation adjustment based on the national average gas cost. Additional costs which are deemed prudent by FERC may be allowed after a special regulatory proceeding, with an assumed delay of six months.

For the high average cost pipeline, the passthrough limit imposed by section 603 would have no effect. Projections for two limiting cases are shown in Table 13-1. The "no additional passthrough" case (Column 1) assumes that no purchased gas costs above the section 603 specified limit are allowed by FERC. The "full additional passthrough" case (Column 2) assumes that all purchased gas costs, including those above the section 603 limit, are deemed prudent by the Commission and allowed after a six-month delay for special rate proceedings. The PGA projections in Columns 1 and 2 are identical because the average purchased gas price is influenced downward by contract renegotiations and never exceeds the limit calculated according to section 603. An additional downward push occurs at the date of enactment, as the maximum lawful price for some section 102, 103 and 108 gas is reduced from the current ceiling to the gas cap price, as required by S. 615.

For the low average cost pipeline, the treatment of additional costs under section 603 would make a difference in the projections (Columns 3 and 4). With no additional passthrough, the PGA limit is almost 25 percent below the actual average purchased gas price by 1986, leading to a substantial rise in the allowed rate after section 603 expires. With full additional cost recovery the PGA increases more gradually from 1984 through 1986, reaching the same eventual rate. The PGA is still about 10 percent below the actual average price during this period, however, due to the delay in cost recovery. In either case, there would be substantial unrecovered costs which might prevent low-cost pipelines from bidding for higher cost reserves. As I discussed in my answer to question 34, underrecovery of reasonable incurred costs can be avoided only through a surcharge levied after the Commission's final rate decision, or through collection of rates subject to refund pending a final decision.

As a final test, Columns 5 and 6 illustrate the influence of inflation on PGA prices (4% annually and 12% annually, respectively). Comparing with Column 3's assumed 8% annual inflation, the rise in the PGA during the first six months of 1986 is a similar percentage, although the absolute magnitudes vary.

Overall, the annual increase in the PGA between 1983 and 1988 for the low-cost pipeline is between 10% and 16% depending on the rate of inflation. In real terms, the annual increase is between 4 and 6 percent.

TABLE 13-1

Allowed PGA Rates 1983-1988
(In dollars per million Btus)

	Columbia Gas Transmission (high average cost)		Kansas-Nebraska Natural Gas Co. (low average cost)			
Date	1 No additional pass-through	2 Full additional pass-through	3 No additional pass-through	4 Full additional pass-through	5 Low inflation (4%/yr)	6 High inflation (12%/yr)
3/1/83	3.93	3.93	2.06	2.06	2.06	2.06
7/1/83	3.93	3.93	2.09	2.09	2.07	2.12
1/1/84	3.91	3.91	2.13	2.13	2.07	2.19
7/1/84	3.97	3.97	2.34	2.42	2.19	2.50
1/1/85	3.98	3.98	2.47	2.49	2.25	2.69
7/1/85	4.01	4.01	2.59	2.71	2.31	2.88
1/1/86	4.15	4.15	2.72	3.13	2.37	3.06
7/1/86	4.30 a/	4.30 a/	3.52 a/	3.52 a/	3.12	3.97
1/1/87	4.47	4.47	3.68	3.68	3.20	4.23
7/1/87	4.64	4.64	3.85	3.85	3.28	4.51
1/1/88	4.82	4.82	4.03	4.03	3.36	4.81
Average Nominal Annual Increase	5%	5%	13%	13%	10%	16%
Average Real (Inflation Adjusted) Annual Increase	-3%	-3%	5%	5%	6%	4%
Maximum Nominal Annual Increase	8%	8%	30%	25%	29%	32%
Maximum Real (Inflation Adjusted) Annual Increase	0%	0%	20%	16%	24%	18%

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a/ The low-cost pipelines' average gas cost continues to be lower than that of the high-cost pipeline even after expiration of the gas cap and the PGA limit. This continuing difference results from the assumption regarding contract renegotiations: since contracts are assumed to be renegotiated at a price between the original contract price and the market price, pipelines continue to derive some benefit from their inventory of low-cost gas even under the renegotiated contracts.

Question 14

Please explain how you believe the affiliated production provision in the Administration bill would work in actual practice.

> a. If a pipeline is taking only 50% of an Appalachian producer's production, for example, does that mean it would not be able to pass through costs of purchases at a rate exceeding 50% for any of its own production?
>
> b. If a pipeline is taking Canadian gas at 75% of the contract rate, how would this provision affect its other takes?

Answer

Section 603(f) provides:

> (f) AFFILIATED PRODUCTION. -- No interstate pipeline may recover any costs associated with its own production or purchases from any affiliated producer to the extent such production or purchases were not reduced to a percentage of deliverability no higher than the percentage of deliverability to which the pipeline had exercised contemporaneously a contractual right to reduce its takes of less expensive gas.

Under this provision a pipeline would be required to reduce deliverability from its own wells and those of affiliated producers to a level of 50% if the gas from such wells is more expensive, regardless of NGPA pricing category, than the Appalachian producer's production. The pipeline's alternatives, which obviously would not be viable, would be to continue to take production from such wells at a rate in excess of 50% of deliverability, but not to recover the cost of such gas above the 50% limit. The same logic applies to takes of production from its own or an affiliate's wells in excess of 75%, if the pipelines had cutback takes of Canadian gas to 75% of deliverability and the Canadian gas was less expensive than the pipeline or affiliate-owned production.

These hypothetical questions raise some obvious, and some not so obvious, questions about the policy underlying section 603(f) and the effect of the language as written. The obvious questions are: (1) Is the lack of symmetry intentional? The section lacks symmetry in two ways, i.e. both as to volume and as to price. As to volume, the reduction of the pipeline's own and its affiliate's production could far exceed the volumes not taken from the nonaffiliate. Assume, for example, that the Appalachian producer's gas is priced at the § 103(b) level of $2.74 and the volumes produced from the well are 100 Mcf per day. Assume further that the pipeline has a total of 5,000 Mcf per day of its own or an affiliate's production priced under sections 102 and 107. The consequence of section 603(f) is the loss of production of 50 times more gas from its own or an affiliate's production than the amount of gas shut-in from the nonaffiliated producer. This example also illustrates the lack of symmetry as to effects on NGPA pricing category. A decision involving § 103(b) gas produced by a nonaffiliate not only affects disproportionate volumes, but the disproportion is magnified by the provision's application to gas priced under other NGPA categories (e.g., sections 102 and 107) than that applicable to the nonaffiliated production (e.g., section 103) subject to the cutback decision.

(2) Is the provision intended to be triggered by decisions to reduce takes of imported gas and, if so, how is the price of the imported production to be calculated? For example, Canadian gas is priced at the border at $4.94 per MMBtu. That includes the cost of transportation of gas to the border. The question thus arises whether the trigger price is the "net back" to the wellhead (border price, less transportation and other nonproduction expenses) or the border price? Would a similar decision in connection with Algerian gas lead to a trigger price based on the contract price of the gas, or the contract price plus liquefaction, shipping, regasification or, possibly, transportation. Perhaps most importantly, is imported gas really meant to trigger § 603(f) at all?

A nonobvious question is whether section 603(f) is intended to have any practical limits. For example, a decision to cut back takes from the hypothetical Appalachian producer may have been caused by the producer's own decision to work over or recomplete his well. Or, perhaps, the decision was influenced by a well freezeup, or a problem in a gathering line, a temporary bottleneck problem on the pipeline, or a compressor breakdown. Reductions in takes due to such problems are irrelevant to the presumptive policy underlying the section, which is to encourage a reasonable least-cost supply mix by the pipeline.

Finally, is the limitation on takes of pipeline and affiliated production intended to apply irrespective of drainage problems which may arise in connection with such production? Drainage of the pipeline's or its affiliate's production can occur as a result of the economic limit (i.e. no cost pass through) imposed by section 603(f). This could lead to a loss of the pipeline's or its affiliate's lease for failure to meet its lease covenant to produce. Cf. proposed section 315(d).

Question 15

In order to obtain a certificate of public convenience and necessity under the Natural Gas Act, a pipeline must show that it has sufficient natural gas reserves dedicated to it to make the project economic and reliable. Sec. 202 removes the certification and abandonment authorities for deregulated natural gas. How will a pipeline be able to show it has sufficient reserves for a certificate, if it no longer has dedicated reserves?

Answer

The question indicates that dropping the certificate and abandonment requirements for producer sales would be a departure from the existing procedures. In fact, since implementation of the NGPA, and operation of its Section 601(a)(1), most of the supply used to justify pipeline expansions was not committed or dedicated gas. The proposed Section 202 amendment to NGPA Section 601(a)(1) would apply to virtually all gas; whereas, existing NGPA Section 601 would have left certain categories subject to non-price regulation. In lieu of direct regulation, assurance of gas supply is provided by contracts and other evidence in the pipeline certificate case.

It is true that the Commission once adhered strictly to the 12-year deliverability life policy set forth in Section 2.71 of its General Rules, and that Section 157.14(a)(10)(v) of the Commission's Regulations lists gas purchase contracts among the items to be included in an applicant's filing seeking a certificate. However, even prior to the NGPA, information other than contracts has been given increasing weight, and deliverability life has been considered in the overall context of the proposal. 1/ For example, in High Island Offshore System, Docket No. CP75-104, et al., 55 FPC 2674 (1976), advance payment agreements, producer investment and drilling activity and the location of the project as a "keystone" facility were viewed as being sufficient to establish the reasonable likelihood of available gas supplies.

1/ The reserve life index frequently is raised in connection with load-growth cases (market expansion). In Opinion No. 130, Northern Natural Gas Company, Docket Nos. CP80-135, et al., 16 FERC ¶61,233 (1981); Columbia Gas Transmission Corporation, Docket Nos. CP80-430 and CP81-144, 15 FERC ¶61,243 (1981); and Columbia Gas Transmission Corporation, Docket No. CP81-433-001, 21 FERC ¶61,026 (1982); the Commission rejected the rigid application of any fixed reserve life index in favor of a "flexible standard" by which an assessment of the pipeline's attached reserves together with its reasonable prospects for additional supplies would be made. This was done in light of the current transition from regulated to market prices.

Similarly, a certificate was issued in Cities Service Gas Co., Docket No. CP76-500, FERC ¶61,268 (1978) on the basis of the general abundance of reserves in the area and precedent agreements with certain producers. This approach was continued in the two most recent cases of supply-area expansions, Opinion No. 125 and 125-A, Ozark Gas Transmission System, 16 FERC ¶61,099 (1981) and 17 FERC ¶61,024 (1981) and Opinion No. 138, Trailblazer Pipeline Company, et al., 18 FERC ¶61,244 (1982), where contracts were in force to support a portion of the capacity proposed and studies projected the remaining volumes required.

The policy of certificating pipeline projects on the basis that they "offer the substantial possibility of developing new supplies of natural gas" can entail some risks. However, the above referred to certificates have all contained appropriate conditions to allocate the risk of under-utilization (in the event reserves were overestimated) between the ratepayers (or the shipper) and the applicant's shareholders. In Cities, Ozark, and Trailblazer, this protection has taken the form of the "minimum annual throughput condition." Under this approach, the pipeline's rates are computed as if a certain quantity of gas flowed whether it did or not. In applying the statutory standard of "present or future public convenience and necessity" the Commission considers reserves, whether certificated or not, as only one factor among many, in reaching a determination of whether a certificate should be issued.

The same above described procedures, or other similar procedures, could be used by a pipeline to show whether the pipeline has sufficient reserves to support its requested certificate. Likewise, the Commission could use the above described approach to impose appropriate "conditions" on any certificate that may be issued.

Question 16

What would happen to pipeline certificates for existing pipelines if the reserves dedicated to that pipeline are no longer there?

Answer

Pipelines must receive certificates under section 7(c) of the Natural Gas Act for both jurisdictional sales and service. Before such sales or service is terminated, the pipeline is required to apply for and receive abandonment authority under section 7(b) of the Act. The exception is the case of interrupted sales or service not expected to be permanent which triggers application of the pipeline's curtailment plan. Thus, if a pipeline suffered a permanent loss of reserves which would cause a termination of certificated sales or service, an abandonment application would have to be filed with the Commission. If a temporary interruption was likely to result, the pipeline might be able to rely on its curtailment plan, rather than apply for abandonment.

This question seems to be stimulated by the provisions of section 303 of the bill which would allow producers -- as well as pipelines -- to terminate any contract for the first sale of natural gas, along with section 202 eliminating regulatory controls over gas subject to contracts terminated under the provisions of section 303. The thought seems to be that producers are insufficiently motivated to renegotiate contracts and will elect to terminate them, selling the gas subject to them to other purchasers. The result would then lead to losses of reserves necessary for pipelines to meet certificated sales and service obligations.

Several observations might be relevant for Committee consideration. First, as a matter of substantial probability, there will continue to be a market overhang of surplus deliverability in 1985 when section 303 can be invoked. The current surplus may well have been amplified by the loss of a large volume of additional sales if legislative relief of present problems is not provided by the end of this coming summer. Under those circumstances, the pipelines will have the margin of bargaining leverage in a market too soft to offer producers a realistic opportunity to find alternative purchasers. Under these circumstances, the hypothetical is a nonproblem. If, on the other hand, the Committee is uncomfortable in relying on probabilities, it has two alternatives. One would be to allow producers to terminate, but grant pipelines a right of first refusal in connection with resales. The other would be to phase up "old gas" prices to gas gap levels over some schedule, rather than permit renegotiation of old gas prices. The phase up possibly could be tied to the renegotiation downward to gas cap levels of gas priced at higher than market levels.

Question 17

Pleare provide the Committee with estimates of the personnel and increased authorization ceilings that would be necesscary to administer S. 615 in its present form.

Answer

The Commission is currently assessing the resource implications of S. 615. The GAO, at the request of the House Subcommittee on Fossil and Synthetic Fuels and Resources, is addressing the supply, demand, and price effects of S. 615 as well as the effects of the bill on the Commission's operations. In addition, an internal FERC task force has been established to address the resource requirements in preparation of our FY 1985 budget to OMB and the Congress. While the results of these detailed studies by GAO and FERC are not yet available for review, I do not foresee any appreciable increase in FERC personnel or budget requirements to administer S. 615 in its present form, except, possibly, in connection with the special proceedings under proposed section 603(b). This section probably would increase budget requirements if modified as suggested in the answer to question 59. I will forward a summary of the task force activities to you as soon as it is completed.

Question 18

Under applicable FERC laws and regulations, what penalties are there for failure to comply with the filing requirement in section 301 of S. 615?

Answer

Section 301(e) filing requirements apply to purchasers of gas subject to a first sale contract executed or amended on or after the date of the enactment of the Act. The parties must file within 5 days of the date the contract is executed or amended:

(1) a summary of the contract and all ancillary agreements, including all pricing provisions;
(2) the prices to be paid under the contract during the first three months of deliveries;
(3) the estimated volumes (in millions of Btus) to be delivered during the first year of the contract; and
(4) any additional data required by the Commission.

An exemption from filing requirements is allowed where a contract has been amended, and price data has been filed with the Commission under this subsection.

Section 504 of the NGPA sets out the authority of the Commission to enforce the NGPA. Briefly, the Commission may bring a civil action in a U. S. District Court to enforce compliance with the NGPA or any rule or order issued thereunder (NGPA section 504(b)(1)). In the case of civil violations, a "knowing" violation of the NGPA can bring a penalty of not greater than $5,000 for any one violation under section 504(b)(6). A violation is defined by the NGPA so that each day of a violation can be a separate violation. The term "knowing" is applied in both criminal and civil violation cases, and is defined as the actual or constructive knowledge deemed to be posssessed by a reasonable individual acting under similar circumstances.

Criminal penalties may also be assessed for violating the NGPA or any rule or order issued thereunder. Penalties may be a fine of not more than $5,000, or imprisonment of not greater than 2 years, or both pursuant to section 504(c)(1) for the violation of the Act itself. The violation must have been knowingly and willfully committed. If there is a knowing and willful violation of a Commission rule or order, the fine assessed may not exceed $500 for each separate violation (the Commission has the authority under the NGPA to treat as a separate violation each day of violation) pursuant to section 504(c)(2). In this connection, I would recommend that the Committee consider limiting the "knowing" standard for criminal penalties to cases of actual knowledge, rather than including cases where knowledge is imputed.

Question 19

How would the maximum lawful price in the proposed gas cap treat production-related costs and severance taxes? If production-related costs and severance taxes would be excluded, how much would they add to an interstate pipeline's average acquisition cost, assuming current FERC regulations stay in effect?

Answer

Section 301(a) would establish a maximum lawful price which is the lower of the applicable price under sections 102 through 106, 108 and 109 or the gas cap price. The gas cap therefore arguably does not apply to section 110 allowances. To avoid inconsistency, S. 615 could be interpreted to exclude section 110 allowances from the calculation of the cap. In other words, the reporting purchaser would not include any section 110 allowances reflected in the contract and that computation of the gas cap price would not include section 110 allowances.

A historical footnote might be useful in considering this issue. After 1954 when wellhead sales committed or dedicated to interstate service became subject to Federal regulation, production was priced by the Commission on some cost-of-service formula, either by well, by area or nationally. (The exceptions were a relatively brief period of "in-line" pricing and an attempt to eliminate controls over "small producers.") Production-related costs and severance taxes were applied for as an add-on to otherwise just and reasonable rates, therefore, in the context of cost-of-service pricing. However, if one views gas as just another commodity (like wheat, steel, coal or shoes), which should be priced on a market basis at the wellhead rather than on a cost-of-service or other regulated basis, then the concept of add-ons for such costs loses some of its relevance. The bill arguably should recognize that for market purposes the relevant price is the economic cost to the purchaser, which includes the entire subset of costs to the producer, including those that are production or tax-related. Accordingly, the cap perhaps should be computed by using the volume-weighted average price for delivered natural gas. In this connection, it is useful to bear in mind that pipelines will only be able to pay prices for new gas that can be passed along to their customers. And, as dramatized in the current market environment, that cost is limited by the level of alternative fuel prices and the determination of the FERC to require pipelines to maintain high load factors as a condition to earning their allowed returns.

In summary, it is somewhat unclear what the words "prices to be paid under the contract" in proposed section 111(e)(2) mean. Congressional intent should thus be clarified either by legislative history or amendatory language to avoid confusion over whether section 110 allowances are intended to be included in calculation of the cap.

Question 20

Under what authority is FERC able to regulate the contracting practices of intrastate pipelines as Sec. 302 would require?

Answer -

I do not read section 302 either to require regulation of the contracting practices of intrastate pipelines or to grant the FERC the authority to regulate such practices. Section 302 adds a new section 315 to the NGPA, which allows pipelines to limit takes under contracts providing relatively high take-or-pay obligations. The provision is self-implementing as to both interstate and intrastate pipelines in that they need only provide 30 days' notice and reduce their takes as low as the 70% limitation. The Commission may provide relief to eliminate drainage problems, and proposed section 315(d) does not distinguish between interstate and intrastate pipelines in that connection. The transportation obligation is to be enforced either by the Commission or a state commission in the case of an intrastate, under the provisions of section 316(d). See, in this connection, section 315(c). As a matter of symmetry, the Committee may wish to adopt a parallel solution for drainage problems allowing producers selling gas under contracts with intrastate pipelines to seek drainage relief from state commissions, rather than the FERC.

Question 21

Section 302 appears to be a private contract right, but the Commission has discretionary authority to come in if it is necessary to "prevent drainage and protect the correlative rights of the person producing the natural gas involved."

(a) How would the Commission get involved?

(b) Would someone have to file something with the Commission?

(c) What would the party have to show in order to make its case?

(d) Would the State Commission have any involvement in such a proceeding?

Answer

The proposed amendment to NGPA section 315 will allow natural gas purchasers, subject to take-or-pay clauses under contracts not amended pursuant to proposed section 201, to refuse delivery of volumes in excess of 70 percent of deliverability from wells included under the contract. Newly created section 315(d) would allow the Commission to determine that under certain situations, the purchaser's right to refuse delivery should be disallowed, to the extent that production above 70% of deliverability is necessary to prevent drainage and protect correlative rights.

Due to the ability of natural gas to diffuse readily, there is a great likelihood of its being withdrawn from leased premises by the operation of wells on adjoining lands. To protect against both drainage and waste, those states in which there is production of oil and gas in commercial quantities generally regulate production so as to protect correlative rights. The Supreme Court, in Northern Natural Gas Co. v. State Corporation Commission of Kansas, 372 U.S. 84 (1963), stated that "there is no doubt that the States do possess power to allocate and conserve scarce natural resources upon and beneath their lands." This power was recognized with respect to natural gas in Patterson v. Stanolind Oil & Gas Co., 305 U.S. 376 (1945).

It is generally agreed that the various state and Federal agencies have access to the necessary information, as well as the expertise, regarding production in their particular jurisdiction. These agencies regularly deal with issues of drainage and correlative rights when ruling upon questions involving spacing requirements, pooling arrangements, and production quotas. Questions regarding such issues are genuinely considered unique to state regulation. It is not clear, however, the extent to which section 315(d) grants these agencics the authority to make these types of findings for purposes of that section. This type of authority is presently delegated to the jurisdictional agencies under NGPA section 503(c), which deals with well category determinations.

Unless the jurisdictional agencies could be considered as authorized to make the necessary findings regarding the issue of drainage as presented by section 315(d), the Commission would be required to prescribe regulations promulgating the standards and make the determinations regarding drainage. Upon the receipt of the notice by the purchaser that it intends to reduce volumes purchased, as is required by section 315(c), a seller concerned about the possibility of resulting drainage would need to petition the Commission for a finding as to the correlative rights affected. It is unclear whether the purchaser must continue to purchase volumes above 70 percent of deliverability upon notification that the seller has petitioned the Commission, or whether the purchaser may reduce volumes purchased pending a final determination made by the Commission regarding the pending petition.

In promulgating the standards necessary to administer section 315(d), the Commission could look to the jurisdictional agencies' procedures as guidelines as most producing states have spacing requirements and exemptions designed to protect against drainage. Moreover, the Commission could allow the jurisdictional agencies to compile and review the evidence submitted by the producers in support of the claim of drainage. Alternatively, any filings on record with these agencies concerning drainage issues might be forwarded to the Commission to be part of the record compiled by the Commission in a particular proceeding. The Commission currently interprets the NGPA to allow it to rely on these agencies when making determinations under sections 102(c) [determinations of new, onshore reservoirs], 103(c) [state proration units for new, onshore production wells], 107(c)(5) [tight formation designations], and 108(b) [production records for stripper wells].

Further, the courts have generally construed leases to include an implied covenant by the lessees to prevent drainage by drilling offset wells, where such wells would be drilled by a reasonably prudent operator, i.e. for a profit. Gerson v. Anderson-Pritchard Production Corp., 149 F.2d 444 (10th Cir. 1945). Thus, any discussion of reduction in takes to 70 percent of deliverability must be sensitive to the contractual rights of the lessor, the lessee, and the royalty owners. Any regulations promulgated as a result of section 315(d) must be specific enough to prevent all those producers affected by section 315(a) from filing a petition in order to satisfy their lease covenants.

In all these areas, clarification in the legislative history would be helpful to the Commission's implementation.

Finally, the new section 315(d) of the NGPA appears to apply only to the correlative rights of "the person producing the natural gas involved." Other parties in a common source of supply such as royalty owners, competitive purchasers and in some cases different taxing jurisdictions also have correlative rights to a portion of, or revenues from, the production. The status of these parties is not clear as the section is currently drafted.

Question 22

What would happen in producing states with ratable take statutes if a purchaser were to invoke this new authority? Would not the Federal law override in such instances?

Answer

The issue of federal preemption over state regulations concerning ratable takes was addressed by the United States Supreme Court in Northern Natural Gas Co. v. State Corporation Commission of Kansas, 372 U.S. 84 (1963). Therein the Supreme Court held unconstitutional a Kansas State Corporation Commission order that required an interstate pipeline company to purchase natural gas ratably from all 1,100 wells connected to its system in the Hugoton Field. The Commission further contends that the Northern case is even applicable to production from a single well, or field. Thus, it would appear that the authority to reduce the purchases of gas, pursuant to section 315(a), would also preempt any state ratable take statute that might be invoked to prevent an interstate pipeline from reducing its takes from wells within the state. It can also be argued that any attempt by the states to interfere with an intrastate pipeline company's decision to reduce its purchases would also be preempted. It should be noted, however, that the Commission may consider the impact of the take-or-pay limit in implementing section 302.

Question 23

Sec. 303 of S. 615 would allow "either party to a contract for the first sale of natural gas" to abrogate a contract.

a. What, if any, sales by a producer of natural gas to an interstate pipeline would be exempt from the provision?

b. What, if any, sales by a producer of natural gas to an intrastate pipeline would be exempt from the provision?

c. What, if any, sales by a producer of natural gas to an industrial user would be exempt from the provision?

d. What, if any, sales by a pipeline to a local distribution company would be exempt from the provision?

e. What, if any, sales by an interstate pipeline to an industrial user would be exempt from the provision?

f. What, if any, sales by an intrastate pipeline to an industrial user would be exempt from the provision?

Answer

Section 2(21) of the NGPA, which survives the provisions of S. 615 intact, provides as follows:

> (A) Any sale of any volume of natural gas --
>
> (i) to any interstate pipeline or intrastate pipeline;
>
> (ii) to any local distribution company;
>
> (iii) to any person for use by such person;
>
> (iv) which precedes any sale described in clauses (i), (ii), or (iii); and
>
> (v) which precedes or follows any sale described in clauses (i), (ii), (iii), or (iv), and is defined by the Commission as a first sale in order to prevent circumvention of any maximum lawful price established under this Act.
>
> (B) Certain Sales Not Included -- Clauses (i), (ii), (iii), or (iv) of subparagraph (A) shall not include the sale of any volume of natural gas by any interstate

> pipeline, intrastate pipeline, or local distribution company, or any affiliate thereof, unless such sale is attributable to volumes of natural gas produced by such interstate pipeline, intrastate pipeline, local distribution company, or any affiliate thereof.

Under this definition, sales from producers to interstate and intrastate pipelines, local distribution companies and end users are covered by section 303 of S. 615, unless they are otherwise excluded from the definition by operation of either clause (iv) or (v) of NGPA section 2(21)(B).

Sales by an interstate or intrastate pipeline to a local distribution company or an industrial user are exempt from the operation of section 303 of S. 615 unless they are "attributable to volumes of natural gas produced by such interstate . . . [or], intrastate pipeline . . . ." The status of the rule's application is to some extent uncertain because of litigation over the Commission's interpretation of section 2(21)(B) of the NGPA. Public Service v. Mid-Louisiana Gas Co., No. 81-1889, et al. (U.S. argued Mar. 21, 1983). The FERC, in its Order No. 58, had decided that volumes of gas were "attributable" to a pipeline's production only so long as they were unmixed with gas purchased from others. This determination was vacated by the former Fifth Circuit, which in effect gave volumes "attributable" to pipeline production within the plain meaning of the term first sale status under section 2(21)(B). See Mid-Louisiana Gas Co. v. FERC, 664 F.2d 530 (former 5th Cir. 1981), cert. granted, ___ U.S. ___, 74 2 Ed. 2d 56, 103 S. Ct. 49 (1982). However, whatever the Supreme Court does in connection with section 2(21)(B) will have no practical application to section 303 of S. 615. Even if the Supreme Court sustains the former Fifth Circuit's Mid-Louisiana decision granting first sale status to pipeline production, there will still be no pipeline production contracts to abrogate since the "first sale" is in reality an intracorporate transfer, not normally covered by contract. Even in an unusual case in which a contract might exist (assuming away conceptual problems under traditional legal rules involving contracts), a pipeline -- whether interstate or intrastate -- would simply change the contract, rather than abrogate it, since the "contract" is with iself.

Question 24

Sec. 401 of S. 615 gives the Commission authority to authorize intrastate pipelines, and local distribution companies, to transport gas for others.

a. What, in your opinion, is the need for this provision.

b. Why should the Federal Government get involved in these transactions which have traditionally been subject to state regulation?

Answer

(a) At present, Section 311(a) of the NGPA narrowly describes the categories of transportation which can be authorized the Commission. Section 311(a) does not cover any transportation by local distribution companies. Transportation by interstate pipelines is covered only if it is "on behalf of intrastate pipelines or local distribution companies." Intrastate pipelines can be authorized to transport on behalf of interstate pipelines or local distribution companies served by interstate pipelines. This statutory "on behalf of" test creates an artificial limitation upon the scope of possible transactions which arise between the interstate and intrastate gas markets. As a result, the Commission has adopted a broad interpretation of the "on behalf of" test. The Commission finds this test satisfied by the creation of some nexus between the transporter and the person on whose behalf the transportation is performed. Other more restrictive tests such as who holds title to the gas or who ultimately receives the gas are not applied. See Order No. 46.

The NGPA sought to create a nation-wide integrated transportation system from the previously separated interstate and intrastate markets. In addition, S. 615 seeks to encourage alternative markets for natural gas by promoting transportation arrangements to link willing buyers and sellers. Such objectives can best be achieved if the Commission has broad discretion to authorize transactions by generic rule under Section 311(a). (Section 7(c) certificates of public convenience and necessity with the attendant case-by-case adjudication, tariff filings and regulatory delay may not always provide the regulatory flexibility necessary to respond to rapidly changing, competitive markets.) The proposed amendment to Section 311(a) would extend our authority to authorize transportation in the stream of interstate commerce by local distribution companies and would eliminate the current restrictions due to the "on behalf of" requirement.

(b) In addition, section 601 (a)(2) of the NGPA insulates any intrastate pipeline from Natural Gas Act jurisdiction with respect to section 311 transportation. However, because section 311(a) does not authorize other transportation relationships, intrastate pipelines have been reluctant to transport on behalf of other intrastate pipelines or local distribution companies where they might subject themselves to Natural Gas Act jurisdiction. Technically, whenever a molecule of gas is commingled with a gas stream that crosses a state boundary, the entire movement of gas is in the stream of interstate commerce and subject to the Commission's Natural Gas Act jurisdiction. This limitation is contrary to the Administration's intent to create a nation-wide integrated transportation system from interstate and intrastate markets. By broadening the scope of Section 311, S. 615 would enlarge the variety of transportation arrangements in the stream of interstate commerce which would remain subject to state regulation and outside the scope of Natural Gas Act jurisdiction.

Question 25

Sec. 401 of S. 615 also gives the Commission authority to authorize assignments of surplus gas by intrastate pipelines and local distribution companies.

a. What, in your opinion, is the need for this provision?

b. Why should the Federal Government get involved in these transactions, which have traditionally been subject to State regulation?

Answer

(a) At present, intrastate pipelines may assign their right to receive natural gas if:

1) The gas is sold in a first sale which is subject to a maximum lawful price established under Title I of the NGPA.

2) the gas was not committed or dedicated to interstate commerce within the meaning of section 2(18) of the NGPA, on November 8, 1978 and

3) a state commission finds the gas to be surplus

In the absence of a Section 312 assignment authorization, the intrastate pipeline has the option of either selling the gas under Section 311(b) or making a jurisdictional sale for resale which is subject to the certificate requirements of section 7 of the Natural Gas Act.

Few assignments have occurred under Section 312. In general, state commissions have been reluctant to make the requisite "surplus" determination. Proposed Section 401 would permit either the state commission or the FERC to make these "surplus" determinations and would encourage assignments. In other words the FERC is given jurisdiction that it did not previously have, and state jurisdiction contracts to the extent of the new FERC jurisdiction. In addition, the current requirement that the gas be subject to a Title I maximum lawful price excludes section 107(c)(1)-(4) from assignment under this provision. (Additional categories of gas would be removed in 1985 and 1987.) Given the revision of the price ceiling provisions in S. 615, this limitation no longer serves its original purpose. However, as presently drafted, proposed Section 401 would provide the Commission with discretion to impose price or other limitations upon assignments under Section 312 of the NGPA.

(b) Section 312 authorization is required only for those assignments which would otherwise constitute sales for resale in interstate commerce. The revision to Section 312 does not extend Commission jurisdiction to purely intrastate transactions.

Question 26

Section 403 of S. 615 is designed to move gas between a producer and a purchaser, even if the interstate pipeline previously carrying the gas is no longer a party to that transaction. Under this provision, what would happen if the following situation were to occur: Pipeline A has some old gas. It is not able to reach an agreement with the producer and the contract is not renegotiated. It is terminated. The producer then sells the gas to pipeline B or to a local distribution company. Pipeline A serves Chicago; pipeline B and the local distribution company serve New England. How will this provision get the gas to New England?

Answer

It appears that the principal governing statutory provision would be Section 303 of S. 615 (the market-out provision in proposed NGPA Section 316) rather than Section 403 (the contract carriage provision of proposed NGPA Section 317). The proposed legislation would not permit the parties to terminate existing contracts in all situations in which renegotiation failed. Rather, unilateral termination, as described in this question, would be permitted only between January 1 and December 31, 1985.

Upon unilateral termination of the contract, the producer would have recourse to both Section 316(d) and Section 317. Under Section 316(d), Pipeline A, the pipeline terminating the contract, has an obligation to transport limited volumes of natural gas for the producer. This does not mean that the producer necessarily will invoke the right to have Pipeline A transport the gas. If more efficient or desirable means of transportation are available using other pipelines, the producer may invoke its rights under Section 317. Section 316 provides the producer two advantages. First, in those situations in which only one pipeline serves the general vicinity of the producer's wells, as may be the case for example in the Overthurst area, Section 316 ensures that the producer will be able to move its gas to interconnections with other pipelines and hence to potential buyers. Thus, Section 316 eliminates certain bottleneck problems. It does not, however, ensure that the gas will in fact reach New England. Since Pipeline A does not serve New England, Pipeline A can transport the gas only out of the producing region. Unless other pipelines are willing to transport the gas to New England or can be required to transport the gas under Section 317, there is no iron clad assurance that the gas can be transported to New England.

The second advantage of Section 316 is that it resolves by statute some of the issues raised in Section 317. For example, under Section 316 there is a presumption that Pipeline A will have available capacity to transport on an annual basis up to that volume of gas that represents the largest volume of gas that it had been receiving under the terminated contract during any twelve consecutive months in the 36 months preceding contract termination. This provision's ability to replace the gas lost under the terminated contract partially eliminates two issues that would otherwise arise under Section 317: whether Pipeline A has available capacity, and whether the obligation to transport imposes an undue burden.

If the transportation by Pipeline A is not reasonable, for example, if other pipelines can transport the gas at lower cost or with greater reliability, then the producer may invoke its rights under Section 317, the contract carriage provisions. As under Section 316, transportation does not depend upon the willingness of the transporting pipeline. Thus, both Sections 316 and 317 differ from Section 7 of the Natural Gas Act. Section 317 does not, however, amount to common carriage. Pipelines need not hold themselves out to the public as being willing to provide transportation service on a non-discriminatory basis. Rather, the proposed legislation expressly subordinates contract carriage service to the service requirements of the pipeline's existing customers: a pipeline would not be required to reduce service to existing customers in order to be able to provide contract carriage on a pro rata basis. Hence, Section 317 differs from Section 316. Moreover, under Section 316, the pipeline's obligation to transport is presumed to be valid unless the Commission limits the obligation. Under Section 317, the Commission must expressly authorize the service before service may commence.

Section 317 also leaves certain issues unresolved. The legislation does not specify, for example, how to determine which pipeline may be required to provide transportation in circumstances in which many are available. It is not clear whether the FERC, the producer or the purchaser would have the right to choose the pipelines, and on what basis, if any, this choice must be made.

Question 27

What recourse does a purchaser outside a producing state have, if the intrastate pipeline serving a remote field will not serve as a contract carrier?

Answer

Neither present law nor S. 615 provides a purchaser with a remedy under federal law. Section 403 of S. 615 is limited to imposing a contract carrier obligation upon "interstate pipelines" as that term is defined in Section 2(15) of the NGPA.

Question 28

Under existing law, would a pipeline have a residual utility responsibility to serve a local distribution company previously served by that pipeline, even if the local distribution company were to purchase gas directly from a producer and use Sec. 403 to force transportation of the gas to it?

a. If S. 615 were enacted, how would that responsibility change, if at all?

b. If S. 615 were enacted, would a pipeline have a residual utility responsibility to serve a direct purchaser if that purchaser's direct sale contract for some reason goes unfulfilled?

Answer

Under existing law, a pipeline has an ongoing responsibility to serve a local distribution company (LDC) until it receives permission to abandon service under Sec. 7(b) of NGA. If the use of the word "previously" in the question implies that the pipeline has received abandonment authorization to cease service to the LDC, then the pipeline has no "residual utility responsibility" to serve the LDC.

(a) S.615 at Sec. 403 which would establish a new NGPA Sec. 317 assumes that the Commission has made the following findings before requiring a pipeline to transport gas: "that such pipeline has available capacity, that no undue burden will be placed upon such pipeline, that no construction of new facilities would be required, and that such order would not impair the ability of such pipeline to render adequate service to its existing customers." Arguably, a "residual utility responsibility" would place an undue burden on the pipeline by requiring it to maintain spare, or back-up, capacity to serve the LDC should the LDC's supply fail for some reason. The burden would be undue because other customers on the pipeline would have to assume the cost of the pipeline's reduced load factor. Accordingly, the Commission should be enabled to condition its findings on a stipulation by the LDC that the pipeline is relieved of any such residual authority. Thus, S. 615 arguably results in a change from present law.

(b) There is currently no utility responsibility on the part of pipelines to serve direct sale customers; there is only contract responsibility. Section 403 does not appear to affect the status of existing law.

Question 29

Could you please provide a detailed explanation of the manner in which incremental pricing affects the day-to-day operations of an interstate pipeline?

Answer:

In general, incremental pricing affects the day-to-day operations of interstate pipelines only by requiring compliance with certain accounting procedures. Incremental gas costs must be recorded and the surcharge absorption capability of downstream customers must be evaluated periodically. When a pipeline computes its PGA rate changes, the projected gas acquisition cost is reduced by the amount the pipeline expects to recover (if any) through incremental pricing surcharges. Incremental pricing has had a negligible effect on gas purchasing decisions. The only effect of incremental pricing on the natural gas field market appears to have been been the widespread use of the incremental pricing threshold for deregulated gas (130 percent of the weighted average price of No. 2 fuel oil landed in the greater New York City metropolitan area) as the contract sale price for such deregulated gas.

Question 30

As a practical matter, are the incremental pricing requirements affecting industrial use of natural gas in today's market? Or are individual pipeline rate designs, off-system sales policies, state utility commission decisions, and the like actually more relevant than is incremental pricing in today's environment?

Answer:

As a practical matter, incremental pricing requirements are not affecting industrial use of natural gas in today's market. There are three primary reasons for this. First, many states have adopted retail pricing policies that set industrial rates at the level of the alternative fuel price ceilings. Although industrial customers must pay this price at the retail level, they pay no incremental pricing surcharges. Second, the price of high-sulfur residual oil, which determines the price ceiling for incremental surcharges, has been falling. The alternative fuel price ceilings are in the neighborhood of four dollars per million Btu in nearly every state. Natural gas rates to industrial users have risen above this level for most parts of the country. With gas rates above the alternative fuel price ceiling, incremental pricing ceases to operate, and all purchased gas costs incurred by a pipeline flow into the PGA. Finally, incremental pricing is limited in its impact on the industrial sector by the small segment of the industrial sector subject to incremental pricing. All agricultural, forest products, and natural textile customers are exempt, as are electric utilities and qualifying cogenerators. Only the remaining large industrial boiler fuel facilities are subject to incremental pricing. There are probably only about 1200 non-exempt industrial customers at the present time. The greatest restraint on industrial gas use is the high cost of purchased gas. As noted above, industrial rates have generally risen above the level of the incremental pricing ceiling. Pipeline rate design certainly plays a role in setting industrial rates, but the cost of gas at the wellhead is the dominant factor.

Question 31

The Department of Energy has prepared a paper entitled "Analysis of Natural Gas Consumer Regulatory Reform Legislation". Please provide the Committee with your views on this analysis. Feel free to note the existence of relevant material not contained in the DOE paper and to emphasize material in the paper you think to be especially important. Where you disagree with the DOE paper, please be careful to explain clearly the origin of the disagreement.

Answer

It may be helpful to compare the DOE analysis with the quantitative analysis of the Commission's staff, which is reflected in my answers to some of these questions and in my testimony before the Energy and Natural Resources Committee on March 12. DOE's analysis is based on a model that attempts to simulate the operation of natural gas markets. The FERC does not directly employ such a model; when one is needed, it relies on EIA or other outside analytical groups. Accordingly, the quantitative analysis in my answers and in my testimony is based on the data available to us through PGA filings and from other sources.

Each of these two approaches has strengths and weaknesses. A model generally allows a more reasonable projection of future market conditions than can be made by using simple assumptions to extrapolate from current data. On the other hand, the model used by DOE aggregates all pipelines into two markets. On the other hand and for the near future at least, the impact of policy choices on particular pipelines generally can be estimated better by working directly with current pipeline-specific data.

The two approaches thus should be viewed as complementary. Given the inevitable imprecision of virtually any method, including these, it is to be expected that the results will differ somewhat in connection with the same question, for example, the short-term aggregate impact of a policy choice. So long as the difference is not large, it should be viewed as reflecting the uncertainty that exists even with respect to the near future.

I would now like first to discuss DOE's analysis for the period 1983-1985. During this period, statutory and contractual constraints are likely to keep prices above the market-clearing level under the NGPA, and these constraints are included in the assumptions used by DOE. On the other hand, S. 615

would directly reduce natural gas prices through the gas cap, the freeze on section 107 prices, and the 1985 market-out provision, and would indirectly reduce them by limiting take-or-pay obligations to 70 percent of deliverability. DOE's analysis thus shows that gas prices would be lower under S. 615 than under the NGPA during this period. This is true even under its base case oil price projection, and the difference would be even greater under its low oil price projection. In this connection, I would note that oil prices are now about half way between the base case and the low projection. A decline at least to the level of the low projection is a distinct possibility; I see no reasonable prospect of their rising to the base case within the near future so long as one assumes that oil imports will not be significantly constrained during this period.

DOE's general conclusions for this first period thus agree with my own analysis. And, indeed, it is difficult to see how any other conclusion could reasonably be reached for this period. Given foreseeable market conditions, S. 615 will result in prices below the NGPA level for the next few years. The only real question is, how much lower? For 1983, DOE projects a reduction of $0.19 under the base case and $0.40 under the low oil price projection. These figures would suggest a reduction of around $0.30 under current world oil prices. In my March 12 testimony I estimated the price reduction resulting from the operation of the gas cap alone on various assumed levels for the cap. On the basis of the data in that testimony, it would appear that the average reduction would be about $0.10 for interstate pipelines if the gas cap were at $2.90. I believe that the gas cap may well be lower. The $2.90 estimate is based on current oil prices, and those prices appear to be more likely to decline than to increase. It also assumes that the gas cap will be at the long-run market-clearing level. For reasons discussed in my answer to question 1, I believe that the cap is likely to be somewhat below that level.

Inclusion of intrastate pipelines would increase the average reduction because the average gas cost of those pipelines is generally higher than that of interstate pipelines. If one half of the total intrastate gas supply is assumed to sell at the NGPA section 102 level, the national average reduction resulting from the gas cap would be around $0.13. To this reduction should then be added the additional reduction resulting from the 70 percent limit on take-or-pay. That reduction is not separately estimated by DOE, but in question 40, the reduction is estimated at $0.08. A plausible estimate of the first-year reduction resulting from S. 615 based on our data thus would be about $0.21 per Mcf. This estimate does not take account of the possible impact of contract renegotiation during the first year.

By 1986, presumably the contract problem under the NGPA would be resolved, in one way or another, and the average cost of gas thus would be at the market-clearing level. At page 19 of this analysis, however, DOE appears to assume that the contract problem would still not be resolved in 1987 under the NGPA: downward inflexibility in natural gas contracts would still be resulting in an average price (and not just individual contract prices) above the marke-tclearing level. I think that the adjustment is likely to occur more quickly than that, and that DOE therefore may overestimate the NGPA price somewhat for the second period. However, since DOE assumes that the NGPA price would be only two per cent higher than the market-clearing level by 1987, the difference would not be great.

The contract problem is directly dealt with by S. 615. Under the Administration's proposal the price therefore also should be at the market-clearing level after 1985. For this second period therefore, the comparison between the NGPA and S. 615 is a comparison between two different ways of achieving a market-clearing price. Two points concerning DOE's analysis of this comparison deserve emphasis. The first concerns the sources of the gas. DOE assumes that, in comparison with S. 615, under the NGPA a larger volume of gas would come from high-cost sources (unconventional sources and imports) and that the average cost of conventional deregulated gas would be somewhat higher. In other words, the DOE analysis assumes that the benefit of the cushion would continue to go, at least in substantial part, to foreign exporters of natural gas and to domestic producers of gas priced under certain NGPA categories (i.e. sections 102 and 107, and perhaps, 103). I believe that this assumption is entirely supported by experience and the evidence accumulated to this date.

The second point concerns the price level. Because the policy choice will have an impact on imports, it is necessary to focus on the cost of gas to end users rather than on the average domestic wellhead price. The DOE analysis shows that the cost of gas to residential users in 1987 and 1990 would be somewhat higher under the Administration's proposal than under the NGPA, but that the cost of gas to industrial users would be somewhat lower. If DOE's assumed consumption figures for 1987 and 1992 for residential and industrial users are used to derive a weighted average for these two categories of users, the result is a slightly lower price under the Administration's proposal than under the NGPA for 1987 and a slightly higher price for 1990. The differences in weighted averages is, however, substantially smaller than the difference between the cost of gas to particular categories of end users. Indeed, it is so small -- 2¢ in 1987 and 5¢ in 1990 -- that it should be viewed as having no significance in the context of a projection of this kind.

In sum, DOE projects that the average cost of gas to end users will be substantially the same under the NGPA and under S. 615 after 1985. Under the NGPA, however, a larger share of funds expended for gas acquisition would go to foreign exporters and to producers of certain categories of relatively high-priced domestic gas. This difference seems to me to be plausible and, in fact, to be virtually the inevitable result of continued price controls on old gas. The second difference is that the burden of this cost falls on consumers somewhat differently. In comparison with S. 615, under the NGPA consumers are projected to pay somewhat less for gas directly through their own gas bills and somewhat more indirectly through the cost of goods and services produced with natural gas. This difference is relatively small, and I cannot comment on it without more information concerning the underlying assumptions.

One final note is that DOE assumes that, if the NGPA remains in place and runs its course, contracts will be renegotiated as necessary over the longer run to eliminate payments for gas that tend to raise the average acquisition cost of gas to above-market levels. (As indicated above, they assume that some problems will linger under the NGPA as late as 1987.) This may occur. In fact, I believe it will, and as I have indicated, I believe that it probably will occur somewhat more quickly than DOE projects. But there are two qualifications. The track record of producers and pipelines in achieving voluntary renegotiation of contracts up to the present does not bear out the assumption. Second, the assumption overlooks fundamental market disruptions that may occur in the period of transition to more rational contract conventions. In this connection, gas consumers could be subjected to large and unnecessary burdens during, and perhaps after, the transition period if the NGPA is allowed to play out as scheduled.

I believe, in this connection, that the transition offerd by S. 615 would be much smoother than that offered by the NGPA. An important question raised by legislators and others has been, "Will contracts be renegotiated by pipelines and producers under the bill?" I believe they will, leading to a far faster resolution of the contracts problem than can be expected under the NGPA. My reasoning is that both pipelines and producers will prefer renegotiation to exercise of statutory contract termination, and that the threat of market loss will drive pipelines to exercise market outs rather than pay above-market prices. Pipelines will be driven to renegotiate because they wish to maintain an assured gas supply. Producers will be driven to renegotiate because of costs implicit in changing purchasers and the difficulty of finding new buyers at better prices than can be negotiated with existing buyers in a market characterized by a gas surplus.

In other words, producers will probably have a somewhat better position to bargain with existing buyers than to bargain with new ones. Accordingly, S. 615 offers a timing benefit to gas consumers in connection with resolution of the contracts problem, the value of which is not reflected in the DOE study.

Question 32

How would the analysis of the impact of this legislation change, particularily with respect to prices, if Congress adopts the changes you suggested to S. 615 in your testimony of March 12.

Answer

In my testimony I suggested two major changes: that the PGA limit be modified so that pipelines could be assured of fully collecting reasonable gas costs, and that the gas cap be based only on new gas contracts. It is my understanding that DOE assumes that the PGA limit would in any event not prevent a pipeline from pursuing reasonable gas purchase and renegotiation policies. A change in the procedural rules for the recovery of gas costs above the allowed rate therefore presumably would not affect the projection. The second change, on the other hand, might have some impact on the projection. In my view, a gas cap based solely on new gas contracts would more accurately measure the current market-clearing price. The effect of this change would depend on whether inclusion of renegotiated contracts was assumed to raise or lower the gas cap in relation to the market-clearing level. I think that it would be more likely to lower the gas cap; on that assumption exclusion of renegotiated contracts would raise the gas cap somewhat. However, it is my understanding that DOE assumes that inclusion of renegotiated contracts would on balance raise the cap. On DOE's assumptions, which presumably are incorporated in it model, the change that I suggested would lead to a somewhat lower average gas cost between now and 1986 under S. 615.

Question 33

The Department of Energy Acting General Counsel has prepared an opinion of the constitutionality of Federal natural gas legislation modifying private sales contracts. Please provide the Committee with your General Counsel's views of this opinion.

Answer

The opinion of the DOE Acting General Counsel is well-reasoned and well-researched. It accurately shows the broad authority of the United States Congress, under the Commerce Clause, to lawfully legislate on economic issues and to do so by modifying or otherwise affecting private contracts. What follows are but ancillary observations to particular parts of the opinion.

As additional authority for congressional action, not mentioned in the opinion, there is the "necessary and proper clause," Article I, cl. 18. This has long been held to give the Congress such authority as necessary to effectuate legitimate and constitutional ends. See McCulloch v. Maryland, 4 Wheat. 316, 420 (1819).

The opinion discusses why congressional authority respecting private contracts should not be held limited by other constitutional provisions. Those discussed in the opinion include Article 1, sec. 9, cl. 3 (no *ex post facto* laws); Article I, sec. 10, cl. 1 (no state law to impair the obligations of contracts); and the Tenth Amendment. This list can be extended to include other provisions:

1. Under Art. 1, sec. 9, cl. 6, Congress is prohibited from granting any "preference" to one state over another. However, even though the regulation of natural gas might have the effect of favoring one individual over another (or even one state over another) the "no preference" clause has not been interpreted as prohibiting such a result. *See e.g.*, *Williams* v. *United States*, 255 U.S. 336 (1921) (act of Congress prohibiting interstate transportation of liquor into states having laws prohibiting manufacture of or sale of liquor not repugnant to the no preference clause).

2. Under Art. 1. sec. 1, "all legislative Powers, herein granted shall be vested in a Congress of the United States . . . . "Under this section Congress is limited as to what authority it can delegate. However, numerious delegations to administrative agencies of authority to implement economic law have been sustained, and this has happened without judicial question as to the propriety of the delegation. A good example of this that is directly relevant is the holding that the FPC had appropriate authority under the Natural Gas Act to establish gas prices. Permian Basin Area Rate Cases, 390 U.S. 747 (1968).

A recent decision of the Supreme Court, Energy Reserves Group, Inc. v. Kansas Power and Light Company, No. 83-1370 (decided January 24, 1983) provides useful instruction. The case presented the question whether the State of Kansas, in exercising authority under Section 602(a) of the NGPA to establish ceiling prices for first sales of natural gas, violated Art. I, sec. 10 of the Constitution. The court held that the state had not. The decision provides an analysis of the limits of state authority to pass laws imparing contractual obligations. In summary, the bar against state action is not absolute. To be found unconstitutional, the action must constitute a "substantial impairment" of contract. Even then, the action may still be lawful if the state regulation, in justification, has a "significant and legitimate public purpose." Energy Reserves, slip op. at 10. If a legitimate public purpose has been identified, the next inquiry is whether the impairment of contract is based on "reasonable conditions and [is] a character appropriate to the public purpose justifying [the legislation's] adoption." Id. at 10-11. In the case, the Court found it significant that the parties were operating in a heavily regulated industry. Id. at 11.

This decision is important for it shows to what lengths the Court will go to uphold state action affecting contracts even under the prohibition of Art. 1, sec. 10, cl. 1 of the Constitution. The opinion of DOE's Acting General Counsel shows how deference would be accorded Federal legislation for which there is no equivalent constitutional bar.

Question 34

It has been asserted that the limitation on purchased gas adjustment costs for interstate pipelines contained in Sec. 101(a) of S. 615 will create a bidding advantage for intrastate pipelines in acquiring gas supplies, and as a result will tend to recreate the "dual" market for natural gas that caused so many dislocations in the early 1970's. Please comment on this possibility and estimate what you think will be the magnitude of the resulting problems could be.

Answer:

Whether the limitation on purchased gas adjustments would tend to create a dual market will depend largely on whether workable procedures can be developed for allowing a pipeline full recovery of purchased gas costs in excess of the allowed rate where those costs are found to be just, reasonable, and prudent. To be workable, the procedures provide for two things. First, they must allow rates to be based on projected future costs; this is necessary in order to avoid new monthly rate filings from every pipeline with costs above its allowed rate. Second, they must allow full recovery, but no more than full recovery, incurred between the time that the pipeline files for a rate increase and the time that the Commission makes a final decision if the costs are found to meet the substantive standard. If the procedures established under Section 101 permit the Commission to make a final decision within a relatively short time, full recovery might be accomplished by positive or negative surcharges added to the pipeline's rates after the final decision; such surcharges are now used under the Commission's PGA procedures to correct for errors in past cost projections. However, if the time required for a final decision would be comparable to that requird under the Commission's current Section 4 rate case procedures, it may be necessary to allow pipelines to collect rate increases subject to refund.

If workable procedures cannot be developed, then the limitation on the recovery of purchased gas costs in Section 101 would tend to discourage pipelines from acquiring new supplies if the acquisitions would increase their gas costs above the allowed rate. Such pipelines thus would be at a bidding disadvantage with respect to two groups of pipelines. The first would be the intrastate pipelines, which would by law not be subject to the limitation on recovery of purchased gas costs. The second would be those interstate pipelines that could follow reasonable gas purchasing practices without reaching the allowed rate. The magnitude of this problem would depend on the number of pipelines that found it difficult or impossible to stay under the allowed rate. This number would in turn depend on several factors: the level of the gas cap; the additional price reduction resulting from the limitation of take-or-pay obligations to 70 percent; the rate of decline in pipelines' old gas reserves; and the amount of new gas needed to meet expected future demand.

However, it would be much less significant than the dual market problem created by federal price regulation prior to enactment of the NGPA. The number of pipelines affected would be smaller; the bidding constraint on those pipelines is less rigid; and the problem would last only until 1986. I am not now able to estimate the magnitude of the problem.

Question 35

Please provide the Committee with a section-by section analysis of the applicability of the bill to entities - pipelines, distribution companies, producers and consumers - in the intrastate natural gas markets. Where there are differences in the treatment of interstate and intrastate markets please estimate the impact of such differential treatment.

Answer

Section 101: Section 101 applies only to interstate pipelines. This may create disparities if state commissions do not afford similar consumer protection devices on state level or if interstate pipelines do not modify their gas acquisition practices sufficiently to minimize increases in purchased gas costs.

Section 201: Subsections (a), (b), and (d) are equally applicable to any gas, interstate or intrastate. Subsection (c) provides for special treatment of certain intrastate gas. This subsection would remove NGPA price controls on January 1, 1985. However, during 1985 this gas could not exceed the gas cap price, unless the contract is renegotiated.

Section 202: Section 202 applies only to gas committed or dedicated to interstate commerce in order to eliminate existing discrepancies between the interstate and intrastate markets.

Section 203: Section 203 applies generally to gas that would be deregulated under the NGPA.

Section 301: Section 301 prescribes the operation of the gas cap. It requires purchasers (including intrastate pipelines) of natural gas subject to a first sale contract executed or amended on or after the date of enactment to file certain information with the FERC. Information includes summary of contract, prices, volumes, and "any additional data required by the Commission."

Section 302: This section generally concerns the 70 percent take-or-pay limitation; it is equally applicable to interstate and intrastate pipelines (but see section 316(d)).

Section 303: This section generally concerns "market out" provisions. Subsection (d), "Transportation Obligation," Section 402(b) adds two new subsections (d) and (e) to Section 601 of the NGPA. Subsection (d) limits the jurisdiction of the FERC over a number of intrastate activities. Transportation or sale of natural gas is exempt from FERC jurisdiction if it is a "covered transaction." These are defined as first sales of gas not subject to the jurisdiction of the Commission by reason of NGPA Section 601(a)(1)(A) or (B); first sales of gas from the outer continental shelf; transportation pursuant to the new section 317 (contract carrier section); a sale or assignment pursuant to sections 302(a), 311(b), or 312(a); and sales for resale by Hinshaw pipelines. Downstream sales or transportation of covered transaction gas are also exempt from FERC jurisdiction so long as the gas remains in the State of purchase. Gas transported out of State pursuant to sections 302(a) or 311(a), or a sale or assignment under sections 311(b) or 312 is not deemed to have left the State of purchase.

Subsection (e) simply says that FERC may not condition or deny a sale or transportation authorization on the basis of whether the gas is consumed in the interstate or intrastate markets.

Section 403: This is the new contract carrier section (Section 317). It applies only to interstate pipelines, although an intrastate purchaser may request the FERC to order a pipeline to carry.

Section 501: This section repeals numerous sections of the Powerplant and Industrial Fuel Use Act of 1978. It applies to end-users, both interstate and intrastate.

Section 502: This section contains only conforming Amendments to the Powerplant and Industrial Fuel Use Act of 1978.

Section 503: This section repeals the incremental pricing provisions of the NGPA (Title II). This section applies generally only to interstate pipelines, local distribution companies served by interstate pipelines, and non-exempt large industrial boiler fuel facilities directly or indirectly served by interstate pipelines. Note, however, that repeal would facilitate movement of gas from the interstate to the intrastate market. At present, intrastate pipelines are reluctant to acquire interstate gas for system supply since they and their customers would fall under the incremental pricing rules.

is triggered by either a market out under section 316(a) or by a take-or-pay reduction under section 302(c). The FERC may limit the Transportation Obligaton for interstate pipelines; state commissions may do the same for intrastates.

Section 304: This section requires price escalator clauses to be tied to the gas cap; there is no special impact on intrastates.

Section 401: This section expands NGPA section 311(a) to provide interstate pipelines, intrastate pipelines and local distribution companies the authority to transport gas on behalf of any person. Currently, interstate pipelines can transport on behalf of intrastate pipelines or local distribution companies. This section also modifies NGPA section 311(b) so that any pipeline or distribution company (formerly only intrastate pipelines) can sell to interstate pipelines or distribution companies. The treatment of Rates and Charges is modified to provide a subparagraph (A) for intrastate pipelines and local distribution companies and a new subparagraph (D) for interstate pipelines. Rate treatment remains essentially as under the NGPA and NGA.

Section 312 of the NGPA is also modified so that any pipeline or local distribution company can assign to any other pipeline or distribution company the right to receive surplus natural gas. Currently, only intrastate pipelines can assign surplus gas to interstate pipelines. The definition of surplus natural gas is modified to remove the exclusion of certain gas dedicated to interstate commerce, to remove any reference to price controls under Title I of NGPA, and to allow the FERC to determine the current demands for jurisdictional entities.

Section 402: Section 402(a) expands upon the anticommingling provisions of NGPA Section 314. Under Section 314, anticommingling clauses are voided only with respect to first sales. Section 402(a) would void anticommingling clauses for first sales, the resale, and transportation of gas that is covered by NGPA Section 601(d).

Question 36

What percentage of sales of natural gas in the United States are covered by proposed new Sec. 315 of the NGPA (amendments made by Sec. 302(a) of S. 615)? What categories of sales are left out?

a. What is the impact of this particular choice of coverage in achieving what you would regard as an acceptable solution to the current problems in natural gas markets?

b. Are there categories of sales of natural gas that should not be subject to the operation of Sec. 315?

c. What are these categories and why should they be protected from the operation of these provisions?

Answer

In general section 315 applies to any contract for non-casinghead gas that establishes a take-or-pay obligation in excess of 70 percent of deliverability. Casinghead gas constitutes approximately 17 percent of the natural gas purchased by pipelines. Data on the volume of non-casinghead gas covered by contracts setting take-or-pay in excess of 70 percent of deliverability are not available. However, a study conducted jointly by the Commission, the Energy Information Administration, and the Department of Energy's Office of Policy Planning and Evaluation estimated the average take-or-pay level for each NGPA category. The data from this study do not reflect present contract renegotiations. The Commission's staff is aware of many situations where interstate contracts covering various vintages have been renegotiated to provide take-or-pay relief for various periods of time. However, these renegotiations are too inadequately documented to make it possible to quantify the effect of contract renegotiations for inclusion in this response.

To determine the impact of section 315, the following assumptions have been made: (1) All contracts for each NGPA category set the take-or-pay level at the average level for that category as estimated in the joint study. (2) During 1982, pipelines purchased gas at the minimum take-or-pay level. For interstate pipelines, 1982 purchases are taken from PGA filings made for the period January 1, 1982, through June 30, 1982, whereas the intrastate purchases were taken from Table II of DOE Publication "An Analysis of the Natural Gas Policy Act and Several Alternatives, Part I, The Current State of the Natural Gas Market." (3) There is no section 107 or section 108 casinghead gas. Casinghead gas constitutes the same proportion of each of the other NGPA categories.

On those assumptions, the impact of section 315 can be computed as follows.

NGPA Section	Type of Market	Non Associated Purchases (Tcf)	Weighted Average % Take Requirement	Legislated 70% Take Requirement	% Reduction	Total Affected Volumes (Tcf)
102	Interstate	1.90	90.4	70.0	22.6	.429
102	Intrastate	1.00	87.2	"	19.7	.197
103	Interstate	.98	80.1	"	12.6	.123
103	Intrastate	1.27	80.1	"	12.6	.160
104	Interstate	4.52	92.0	"	23.9	1.080
105	Interstate	.03	75.9	"	7.8	.002
105	Intrastate	2.80	75.9	"	7.8	.218
106	Interstate	.24	92.0	"	23.9	.057
106	Intrastate	.57	75.9	"	7.8	.044
107	Interstate	.66	75.8	"	7.7	.051
107	Intrastate	.11	75.8	"	7.7	.008
108	Interstate	.19	80.0	"	12.5	.024
108	Intrastate	.33	80.0	"	12.5	.041
109	Interstate	.09	80.1	"	12.6	.011
109	Intrastate	N/A	N/A		N/A	N/A
		14.69 1/				2.445

Total non-associated gas affected is 2.445 Tcf or 16.6 percent of the total non-associated gas supplies.

Section 315 would permit some purchasers to reduce their average purchased gas costs in the short term but, if activated, could threaten their ability to serve future customers. To the extent the gas is released from a contract, the purchaser may be required to go to the market for replacement gas.

It is not clear from the legislation whether the 70 percent take-or-pay limitation would also be subject to the usual make-up provisions. If not, the 70 percent take requirement would be viewed as a minimum purchase requirement that some purchasers are now avoiding through use of their present make-up ability. Overall, this legislative device should permit buyers and sellers to realign their sales under present market conditions and alleviate existing problems.

I would suggest that section 108 (stripper) gas should not be subject to the section 302 provisions. Stripper gas wells are, by definition, poorer wells with marginal production and any possible threat of reduced production may make them uneconomical. In addition, this category involves minimal total production.

1/ Total purchases are 17.7 Tcf.

Question 37

Could the Commission administer the provisions of S. 615 affecting the recovery of purchased natural gas costs in a manner consistent with the Supreme Court's holding in Hope v. FPC if it is not amended? Why or why not?

Answer

In FPC v. Hope Natural Gas Co., 320 U.S. 591, 602 (1944), the Supreme Court held the following: "Under the statutory standard of 'just and reasonable' it is the result reached and not the method employed which is controlling." The "result" to which the Court referred is rates that allow a pipeline "to operate successfully, to maintain its financial integrity, to attract capital, and to compensate investors for risks assumed" (*id.* at 605), absent countervailing and legitimate consumer interests (*id.* at 603). Although the Court indicated that the burden of proving a rate order invalid because of unjust or unreasonable consequences was heavy (*id.* at 602), it clearly implied that carrying such a burden was possible. Accordingly, rates that did not reach the desired result could be held to be confiscatory, arbitrary, not in accord with the statute, and probably not in accord with the Constitution, as a matter of existing judicial precedent.

The question whether section 603 conflicts with Hope is one of the proper interpretation of section 603. If that section is intended to prevent the recovery of the amounts determined by the Commission to be just and reasonable, prudently incurred, and actually paid for gas, along with financing costs if the charges cannot be collected currently, then the Hope standard has not been met, at least in my view. Two challenges to this view are possible. First, it could be argued that there are other legitimate consumer interests that tip the balance away from this result, but I can think of none that measure up. The only consumer interest I can identify is not having to pay for what is received, and that is not enough. Second, there are cases where costs implicit in regulatory lag have been held not to result in confiscation. However, they deal with small dollar amounts relative to the exposure of the pipelines under an adverse interpretation of section 603. The remedial language proposed in answer to question 59 allay fears of section 603's conflict with the Hope doctrine.

Question 33

To what extent does proposed Sec. 603(b) (added by Sec. 101(a) of S.615) suggest retroactive regulation of natural gas purchases, since no increase in rates may take place without a Commission order, but the Commission could then "allow recovery if it determines that the costs sought to be recovered were just, reasonable and prudently incurred." (emphasis added)? How would the Commission implement this provision?

Answer

It is unclear from the language of section 603 of the bill whether retroactive recovery (*i.e.*, retroactive from the date the Commission approves the recovery of excess gas costs) is intended. If the intent were to provide recovery of purchased gas costs retroactive from the date of Commission approval to the date of the filing, the Commission could provide for tracking of such costs, with interest, through a deferred accounting mechanism such as Account No. 191 currently used in recovering purchased gas costs through purchased gas cost adjustment clauses. Clarification in the legislative history of the retroactive recovery and interest issues would be helpful to the Commission's implementation of the bill.

Question 39

Please comment on the choice between continuation of the NGPA and enactment of S. 615 as introduced presuming that over the next three years:

(a) oil prices recover and increase at, say, 3% per year in real terms;

(b) oil prices remain constant in real terms; and

(c) oil prices continue to decline, perhaps to below $25 per barrel (in 1983 dollars).

Answer

My comments are based on the following assumptions. First, the average cost of natural gas prices is now at or above the market-clearing level on a national basis. Second, in the absence of legislation, natural gas prices between now and 1985 will continue to increase at roughly the same rate as they have in the last several years; that rate is somewhat lower than 20% annually at the burner-tip. Third, the decontrol of more than half of the total natural gas supply under the NGPA in 1985 will insure that prices are at least at the market-clearing level regardless of the price of alternative fuels, and in the absence of legislation revising natural gas contracts, prices may rise above the market-clearing level for some time. Fourth, under S. 615 the gas cap and the limitation on take-or-pay obligations would maintain prices below the NGPA level between now and 1985, and the reciprocal market-outs in 1985 would then cause prices to settle near the market-clearing level.

On those assumptions, natural gas prices would be lower under S. 615 than under the NGPA over the next three years even if oil prices increased at 3% annually in real terms. The reduction in natural gas prices relative to the NGPA would be larger if oil prices remained constant in real terms or declined.

Question 40

Estimate the impact of the rollback in take-or-pay requirements proposed in S. 615 on the average purchase price of natural gas in each year after enactment. Please explain your assumptions.

Answer

The intrastate market was excluded from the estimation since it does not face the same problems encountered by interstate purchasers. Intrastate pipelines' concern generally is not with take-or-pay conditions, but rests on their inability to compete with interstate purchasers for new sources of supply. Moreover, there are no accurate data on intrastate gas prices available from which to gauge the possible effect of section 302(a). Accordingly, this estimate will pertain to purchases made by regulated interstate pipelines for the period April 1, 1983, through December 31, 1985, the proposed expiration date of section 302(a).

It was further assumed that the NGPA ceiling prices would continue to escalate at the present inflation rates and pipeline purchasers' costs will not exceed the increase permitted by the inflation-adjustment. To the extent that the gas cap effectively reduces those price ceilings, the cost reduction resulting from the limitation on take-or-pay would be smaller than calculated below. The average section 107 high cost gas price paid in April, 1983, and thereafter is assumed to track the inflation adjusted section 102 price. This assumption is intended to approximate the effect of a rapid renegotiation of high-cost section 107 contracts; to the extent that renegotiation occurs gradually or is delayed, the cost reduction resulting from the take-or-pay limit would be larger than calculated below. Finally, another assumption is that the mix of volumes will remain constant over the 2 1/2 year period involved. New gas deliverability will in fact tend to increase over time and old gas deliverability will tend to decrease. Adjustument for these changes in relative volumes probably would tend to increase the calculated cost reduction resulting from the take-or-pay limit.

To determine the impact of the rollback in take-or-pay requirements on the average purchase price of natural gas, it was assumed that the provision would be activated in every case where the average cost of a particular category of gas exceeded the national rate as adjusted for inflation.

Starting with the January-June 1982 PGA filings, which contain the latest breakdown of interstate pipeline purchases by price category, the various prices were increased in accordance with the applicable monthly inflation adjustment through April 1983.

It was assumed that the last monthly inflation adjustment factor published by FERC would remain constant through 1985 and that the average cost of interstate pipeline purchases would also increase by the same inflation adjustment. To the extent that the average price for a particular gas category exceeded the composite unit cost, activation of the 70 percent take requirement was imposed in place of the pipelines' existing take-or-pay requirement. This calculation gave the total amount of costs that could be avoided by use of section 302(a). In order to determine the resulting reduction in average purchase price, these costs and related volumes were then subtracted from the total volumes and costs to arrive at the reduced average costs.

On these assumptions, it appears that total utilization of the 70 percent take requirement would reduce interstate purchaser gas costs $2 billion for the last nine months of 1983, $2.94 billion in 1984 and $3.2 billion in 1985. Taking into consideration the reduced volumes of purchased gas and reduced gas costs, the pipelines' composite unit cost would be reduced from $2.54 to $2.46 in 1983, from $2.66 to $2.56 in 1984, and from $2.77 to $2.67 in 1985.

Question 41

Estimate the amount of natural gas that is likely to be involved in the calculation of the "gas cap price" in any year assuming S. 615 is enacted as introduced. Please provide the Committee with a "sensitivity" analysis of the potential for volatility in the cap under differing assumptions as to the composition of the volumes used to calculate the cap.

Answer:

It is possible to make a very rough estimate of the amount of natural gas under new contracts involved in the calculations of the gas cap. If it is assumed that natural gas is purchased under contracts of from 15 to 20 years and that deliverability under the contracts declines to zero in a linear way over the life of the contract, then on average new contracts with an initial annual deliverability of roughly 2 Tcf would be signed each year. The gas cap in S. 615 is based on contracts signed in a three-month period and includes only deliverability during the first three months of such contracts. The amount of gas involved in the calculation of the gas cap thus would be about 1/16th of the initial annual deliverability of contracts signed during an entire year. On the assumptions made here, the amount of gas under new contracts involved in the calculations thus would be somewhat more than 100 Bcf.

The assumptions on which these calculations are based greatly oversimplify reality, and they concern only long-term averages; the amount of gas covered by new contracts would of course vary substantially from time to time. However, the calculations can serve as a point of comparison for evaluating the potential importance of renegotiated contracts in the gas cap. Renegotiation presumably would be directed principally at old gas and at high-cost Section 107 gas. Annual deliverability for these categories of gas now is approximately 6 Tcf; deliverability for an average three-month period thus is approximately 1.5 Tcf. If S. 615 went into effect on July 1, 1983, parties to these contracts would have 18 months before the statutory reciprocal market-out clause became effective on January 1, 1985. If all low-cost and high-cost contracts were renegotiated during these 18 months, the amount of gas covered by renegotiated contracts involved in the calculation of the gas cap would average 250 Bcf over this period.

I do not believe that the available data make it possible to estimate the volatility of the gas cap. The gas cap will tend to be more volatile to the extent that (1) the amount of gas included in this calculation is small; (2) the relative importance of new and renegotiated contracts changes from time to time; and (3) the relative importance of high-cost and low-cost gas in the renegotiation changes over time. Even if these variables could be reasonably estimated, however, I do not believe that it would be possible to calculate the volatility of the gas cap. Its volatility will depend not only on the amount and composition of the gas involved in the calculation but also on other market variables.

Question 42

As you pointed out in your prepared testimony, "the reduction in gas costs resulting from the cap is largest for the higher cost pipelines" as a general rule. Doesn't that mean Congress is bailing out poorly managed companies, and penalizing the customers of well managed companies because they get the highest cost increases?

Answer

It appears that a number of factors have contributed to the current differences in average gas costs among pipelines. A detailed managment audit would be necessary in order to determine the relative importance of managerial skills among those factors, but it is plausible to suppose that management decisions did contribute to higher gas costs in some cases.

To the extent that this is the case, in an ideal world arguably the burden of those high costs should be placed on pipeline investors. In practice, any measure that relieves pipeline customers from the burden of unnecessarily high gas costs is likely to benefit pipeline investors as well.

Question 43

How long would it take you to gather the necessary data, to calculate, and to publish the gas cap price? It should be noted that the way S. 615 works, the cap goes into effect only "if published".

Answer

The time period provided by Section 111(d) of S. 615 would be adequate to gather the necessary data, calculate and publish the gas cap price in the month prior to the month in which the cap would apply. In order to achieve these month-to-month deadlines, the Commission could establish rules as required by Section 111(f) of S.615 which would set forth procedures, oriented to computer usage, whereby the data would be quickly processed and the gas cap computed for timely publication. A large amount of data could be processed using these procedures.

It is my understanding that EIA shares the view that the gas cap can be published within the time contemplated by S. 615. However, some technical changes in the way in which the cap is calculated may be desirable.

Question 44

Congress is not known for the speed with which it enacts natural gas legislation. Be optimistic and assume S. 615 is enacted next spring. Your prepared statement indicated that the Commission would need a delay of at least 60 days to implement the passthrough limitation. That means summer, 1984. The passthrough limitation expires January 1, 1986. Does that mean we would have only a total of 1 1/2 years of the "consumer protection" provisions under this bill?

Answer

On the assumptions made in the question, it is of course true that the gas cap and the limitation on recovery of gas costs would remain in effect for only a year and a half. However, the contractual relief that pipelines obtained through renegotiation and through the exercise of the statutory market-out clause in 1985 would continue to have an effect well beyond 1986. In addition, the common carrier provisions of S. 615 would remain in force after 1985 and would continue to offer both producers and purchasers of natural gas a broader range of competitive alternatives.

Question 45

In your prepared statement, you seemed to imply that the consumer protection could be illusory, at best, and contrary to the long-term interests of customers, at worst. You seemed to be saying that the passthrough limitation will simply postpone price increases due to pipeline buying practices. Doesn't that mean we could be right back into a consumer revolt in 1986 if this is passed?

Answer

I think that the likelihood of a consumer revolt is minimized if the transition to market-clearing prices on the low-cost pipelines occurs in a smooth and gradual manner. I do not believe that the transition would be smooth and gradual under the NGPA. I am concerned that it also would not be smooth and gradual if the limitation on the recovery of purchased gas costs prevents pipelines from pursuing reasonable renegotiation and gas purchase practices. As discussed in my answer to question 34, whether the limitation would have this effect would depend principally on the procedural rules governing recovery of gas costs in excess of a pipeline's allowed rate.

Question 46

Section 111(d) of S. 615 requires pipelines to file with the Commission the prices and estimated volumes of gas they will purchase. Using this information the Commission will compute the gas cap under S. 615. Do you think that this information should be certified by the pipeline or some cross checks imposed to ensure that "estimates" don't have the effect of raising the gas cap above what it should really be? It would be tempting to estimate high when the price is high and estimate low when the price is low?

Note: "Section 111(d)" is understood to mean "Section 111(e)."

Answer

The information filed by a pipeline should be accompanied by an affidavit signed by a responsible company official of that pipeline attesting that the prices and estimated volumes are based upon the best information and judgment of that official. In addition, the estimated data should be subject to audit by FERC to test the correlation of estimated data with actual data. Corrective procedures could be implemented to address any pattern of improper data filings.

Question 47

If controls are removed in the manner proposed by the Administration, or in any other manner, will prices rise or fall? By how much? Why?

Answer

The answer to this question begins with the simple observation that a number of pipelines are presently faced with load loss due to industrial fuel switching. This fuel switching implies that the current price of gas is above market-clearing levels. If controls are removed in a manner that eliminates both statutory and contractual constraints on market prices, the average price of gas will drop back to the market-clearing price.

The average acquisition cost of gas is now about $3.00 per Mcf. The market-clearing price is determined by burner-tip competition with alternative fuels. In particular, large boiler fuel customers with installed alternative fuel capability represent the marginal user. The lowest priced fuel for such users is high-sulfur residual fuel oil. This grade of fuel oil presently sells for about $23.25 per barrel, which is equivalent to $3.70 per Mcf at the burnertip. In order to derive the market-clearing price at the wellhead, pipeline transportation costs must be subtracted from the competitive burner-tip price. Transmission and distribution charges vary widely, but we estimate a cost of $0.80 per Mcf to be representative of the lower bound. The market-clearing price therefore is $2.90 per Mcf -- ten cents less than the current average price. Stated another way, prices should fall by about ten cents, on the average, if controls are lifted in a manner that allows market forces to operate.

Question 48

If prices fall, how much will production fall?

Answer

Natural gas production is now constrained by demand rather than by supply. Lower prices therefore would mean higher production in the short run.

Question 49

If prices rise, how much will production rise?

Answer

Because production is now constrained by demand rather than by supply, higher prices would generally mean lower production. I want to emphasize that the answer to this question is concerned with the effect of price alone. Over the next year, economic recovery should tend to increase the demand for gas. The demand therefore may be higher six months from now than it is today even if natural gas prices do not decline. However, demand -- and therefore production -- would be still higher if prices were lower.

Question 50:

Can you explain specifically and in detail why prices are not falling now?

Answer

The question presupposes that no gas prices are presently falling. This is not correct. Deregulated gas prices have been reacting quickly to the building surplus of gas and to declines in oil prices. Regulated prices, however, have continued to increase in accordance with the congressionally mandated escalators in the NGPA. The average price of deregulated gas (and other Section 107 gas) has been falling for seven months and is now below the level reached in September of 1981. See Chart 11 included as Tab A2 in Data Notebook provided to the Subcommittee on March 18, 1983. This weighted average price figure conceals the magnitude of the decrease in price for new sales since it includes volumes flowing under existing high-priced contracts without any market-out or other buyer-protection type provision. A number of major pipelines are paying no more than the Section 102 price (approximately $3.32) for Section 107 gas. See Tab D8 in Data Notebook. The fact that the deregulated price for new supplies on those pipelines has fallen to that level -- even with the subsidy made available by the old gas cushion -- strongly suggests that the price would be substantially lower still if the cushion were unavailable.

In addition, the price of industrial gas service has fallen in a number of areas due to price competition from fuel oil. Rates charged to Southern California Edison Co. may be reduced by as much as 12 percent in order to meet competition from No. 6 fuel oil. These reduced rates will presumably result in decreased electricity prices. Similarly, such reduced rates have been recently proposed by Washington Gas Light and a number of other East Coast gas distribution companies.

The Commission itself has received applications from a half-dozen or more pipelines seeking to reduce their rates to distributors making industrial sales (the price of gas where an interstate pipeine sells directly to an industrial end user has never been subject to price regulation). The Commission has set several of these applications for hearing in order to examine whether such discounts would be in effect be subsidized by residential and other ratepayers.

Notwithstanding these price decreases, the weighted average cost of gas (WACOG) acquired by major pipelines has generally continued to increase for most pipelines. This phenonmenon is almost exclusively the result of the various contractual provisions contained in countless contracts which, unless and until modified, tend to preclude price decreases:

o the combination of take-or-pay provisions in producer-pipeline contracts for Sections 102 and 103 gas and certain Commission regulations influence pipelines to purchase higher priced gas notwithstanding the availability of lower-priced gas with lower take-or-pay requirements.

o indefinite price escalator provisions in producer-pipeline contracts track the statutory increases in the maximum lawful prices prescribed in the NGPA. This interplay of contract provision and statutory escalators tends to convert the NGPA price ceilings into price floors.

o minimum commodity-type bills in some pipeline-to-pipeline or pipeline-to-distributor agreements tend in some cases to shift the marketing risk of high-priced gas upstream towards the burnertip markets.

These contractual provisions must be modified if the economic forces of supply and demand are going to be allowed to reduce average prices. The contracts can be modified by the parties through private renegotiation, by the courts in breach of contract actions, or by the Congress through legislation. S. 615 adopts in part the legislative approach and also seeks to encourage private renegotiation.

Question 51

Giving a broad interpretation to the Natural Gas Act and the Natural Gas Policy Act, what authority might the FERC have to remove any barriers that exist at the present time to the fall in prices? Could its authority under Sec. 601(c) of the NGPA, concerning limitations on passthroughs in the event of "fraud, abuse, or similar grounds", be interpreted to provide such authority? Could its rulemaking authority under Sec. 501(a) of the NGPA be used to rectify the situation?

Answer

Since the passage of the NGPA, the Commission's legal authority to prevent the passthrough of purchased gas costs has been limited by section 601(a)(1)(B). See Ecee. Under section 601(c) of the NGPA, the Commission must allow the passthrough of costs if prices paid were for deregulated gas, or at NGPA ceilings or below, unless it determines the prices paid were excessive due to fraud, abuse or similar grounds. For the reasons stated, in its Statement of Policy, Docket No. PL82-1-000, issued February 1982, the Commission limited the fraud standard to consideration of whether the amounts paid were excessive as a result of a misrepresentation of any kind. Policy Statements are not, however, binding on the Commission, and similar questions have been raised in the initial decision in a Columbia Gas Transmission rate case.

Exercise of the Commission's rulemaking authority in section 501(a) of the NGPA would not rectify substantial limitations on the Commission's authority under well-defined, existing judicial precedent.

Question 52

The premise of the Administration's proposal is that the price of alternative fuels will act as a limit on the price of natural gas at the burner-tip. What provisions, if any, of the Natural Gas Act or the Natural Gas Policy Act prevent the pipelines from reducing their prices to that level?

Answer:

Subject to the qualification noted below, no provision of the Natural Gas Act or the Natural Gas Policy Act directly prevents a pipeline from reducing the price it pays under a gas purchase agreement. As noted in the response to Question No. 50, however, those agreements themselves specify pricing provisions which typically do not allow the buyer to lower the price. While market-out or other buyer protection provisions cover a substantial volume of Section 107 gas, such provisions are relatively uncommon among contracts for gas subject to the other NGPA pricing categories. Yet even those prices appear now to be higher than market-clearing prices. The "market-out" provisions of S. 615 would allow the buyer or the seller to offer a lower price without liability for a breach of contract action based on the original contract price.

There is one qualification to the general statement that there is no statutory obstacle to a pipeline's lowering the price that it pays for its gas. Under United Gas Pipeline Company v. FPC 385 U.S. 83 (1966) an interstate pipeline may be found in violation of Section 7(b) of the Natural Gas Act if it unilaterally terminates the purchase of dedicated gas supplies, even where the termination is due to the pipeline's refusal to pay an increased price. In the United case, the purchasing pipeline terminated purchases when the seller claimed that a higher price was due under law. The Commission held that the purchasing pipeline had violated its statutory duty not to terminate certificated service without having first sought and obtained abandonment authorization from the Commission.

A unanimous Supreme Court affirmed, stating that "[t]he statutory necessity of prior Commission approval, with its underlying findings cannot be escaped." 385 U. S. at 89. The Court rejected United's claim that it had no need for the gas:

> United claims that it does not need the Johnson Bayou gas to serve its customers and that the forced purchase of gas at prices set by Continental and approved by the Commission without regard to

> the prices at which United under contract or competition is bound to sell the gas deprives it of property without due process of law. In our view these claims are premature. We do not hold that it would be inappropriate for the Commission to permit abandonment in this case if it is asked to do so and the necessary findings are made. We hold only that United has abandoned facilities and service without the consent of the Commission and that it must reactivate those facilities and restore the service until and unless the statutory consent is obtained." 385 U.S. at 91.

There is pending before the Commission now a filing by an interstate pipeline requesting a Commission finding that termination of purchases due to specified economic factors would not be in violation of Section 7(b) under the United case. See Petition of Northwest Central Pipeline Corporation for Declaratory Order, Docket No. CP83-179-000 (filed January 28, 1983). The Commission will address this issue in the near future.

Question 53

You indicated in your prepared testimony that alternative fuel prices act as a limit on the price of gas because a portion of the burnertip market has the capacity to switch to the alternative fuel. What portion of the burnertip market does not have that fuel switching capability and how can those customers be assured that they will benefit from market forces which at best only apply to sales to customers with fuel switching capability?

Answer

Several categories of natural gas end-users have relatively little alternative fuel capability. Small commercial customers and industrial process and feedstock users typically have no alternative fuel capability. Residential customers have traditionally been viewed as also having no alternative fuel capability, but this appears no longer to be the case. A substantial number of residential users appear now to use gas principally as a back-up fuel, for example, by relying principally on a wood stove. Nevertheless, it continues to be true that most residential users do not have an alternative fuel capability. If price differentials warranted, they could invest in such a capability, but they do not now have the ability to switch between natural gas and another fuel on a short-term basis.

Interstate pipelines generally do not serve residential and small commercial customers directly; the pipelines render wholesale service to distributors that in turn provide retail service to those users. The pipeline companies do not see the individual high-priority customers; they simply see a certain wholesale demand at a certain price. When the price rises, demand falls. Some demand reduction is due to fuel switching, some is due to conservation, some is due to reduced economic activity, and this year some is due to a warmer than normal winter. When demand falls significantly, for whatever reason, the pipeline loses money. This is because pipeline rates are based on a projected volume of sales. Of course, the pipeline can file for a rate increase and attempt to recover its fixed costs over a smaller volume of sales. Pipelines cannot assume that they will be granted the full amount of every proposed rate increase, however. Exposure to the full regulatory process carries the risk of denial of some portion of the sought after revenues. Both in the short term and in the long term, pipelines face the risk of reduced profitability when sales volumes decline.

Understandably, pipelines will attempt to maintain system sales volumes. It is the threat of industrial fuel switching that principally protects the customers who cannot readily switch fuels. The threat of declining sales volumes, short-term revenue shortfall, and ultimately, exposure to a general rate case is sufficient motivation to force changes in gas acquisition policies and to lead to adoption of cost reducing strategies.

Question 54

Under the Natural Gas Act, the FERC already has the authority to scrutinize pipeline gas purchase practices to determine whether they are prudent and to fashion appropriate remedies if they are not. The Administration's proposal only reiterates authority which the FERC already has. Why has the FERC not used this authority to require pipelines to purchase the least cost mix of available gas, and what additional legislation would be necessary to assure that FERC does so in the future?

Answer:

I expect this question to be answered by the Commission in April in a proceeding involving Columbia Gas Transmission Corporation. Since the matter is pending before the Commission as an adjudication, and given the lessons of the *Pillsbury* case, I must decline to speculate about the outcome of the *Columbia* case.

Question 55

The Administration is proposing to deregulate the price of old gas because they believe that the consumer benefits of the "old gas cushion" are being bid away on the purchase of new gas, and in particular, deregulated gas. What other alternatives are available to prevent pipelines from spending the old gas cushion on high-priced gas, and to assure that the benefit is passed through to consumers?

Answer

In theory, pipelines could be prevented from bidding away the old gas cushion if the most price-sensitive users of natural gas were required to pay a price based on the marginal cost of gas to the pipeline. This alternative is not available to the FERC under its general Natural Gas Act ratemaking authority. That authority may be implicitly limited by Title II of the NGPA, but in any event the Commission lacks the power to regulate burner-tip prices; that authority resides in the state utility commissions. Title II itself is also not an effective means of accomplishing this purpose. First, important categories of price-sensitive users are statutorily excluded from incremental pricing. Second, incremental pricing is limited by the price of alternative fuels; it thus ceases to operate precisely at the point where it would begin to affect pipeline gas purchase practices.

Question 56

What, if any, input did you or the members of your staff have to the methodology employed by the Energy Information Administration in developing the model used to study the effect of natural gas decontrol (Part IV of the EIA study of gas decontrol)? How would the effects of the Administration's proposal vary from those projected in the Part IV study?

Answer:

Both I and members of the Commission staff suggested that the complete decontrol alternative in EIA's Part IV should include an assumed remedy for the contract problem. We also suggested that the EIA consider two alternatives for that remedy: (1) a limit on the operation of indefinite price escalator clauses based on the price being negotiated for new gas contracts, and (2) a statutory reciprocal market-out clause.

Question 57

The Administration has included in its proposal an additional five cent per Mcf fee to be paid to pipelines for furnishing transportation in certain instances. What will be the impact of this extra fee and how will it encourage pipelines to furnish transportation services? What rights of access and transportation do producers and distributors have under existing antitrust laws and principles?

Answer:

The Administration's proposal provides as compensation for certain transportation services an amount of $.05 per MMBtu plus cost unless the Commission establishes another rate as just compensation. The $.05 per MMBtu allowance complements the contract carriage provisions by providing pipelines an incentive to undertake complex transportation arrangements.

The antitrust laws give distributors or producers no express right of access to transportation facilities. These laws in principle would provide producers and distributors a remedy, but in view of the cost and delay inherent in antitrust litigation, these laws would not in fact be sufficient to induce pipelines to transport gas for others or to ensure creation of a competitive market.

A producer or distributor may have an antitrust claim under either section 1 or section 2 of the Sherman Act. Section 1 of the Sherman Act is available to counter an arrangement under which a pipeline ties the provision of transportation service to the purchase of the pipeline's system supplies. The producer or distributor would need to show that the pipeline has monopoly power and is tying the transportation of gas to the sale of the pipeline's own supplies. (Section 3 of the Clayton Act, which also proscribes tying arrangements, would not be available since it applies only to the tying of two commodities, not the tying of a commodity and a service.)

Section 2 of the Sherman Act may be available to counter unlawful monopolization. The producer or distributor must show monopoly power plus a general intent or purpose to use such power. A pipeline's refusal to transport gas where it has available capacity, for example, may violate section 2 of the Sherman Act.

The difficulty with either of these potential claims, of course, is that antitrust cases are notoriously costly to litigate and long-lived. Accordingly, as a practical matter, the antitrust laws do not afford distributors or producers a viable remedy against anticompetitive refusals to transport gas. Where Congressional intent is to foster the creation of a competitive market, a legal mechanism more readily available than the antitrust laws is necessary. The Administration's contract carriage provision in S. 615 is such a mechanism.

To underscore the need for contract carriage legislation, a moment must be spent discussing the limits under the Natural Gas Act on this Commission's responding to anticompetitive behavior. These limits are twofold: first, antitrust considerations are but one of many sometimes conflicting public policy considerations that we must take into account. Second, our ability to fashion appropriate remedies is limited.

While it is this Commission's obligation to take antitrust considerations into account in evaluating the public convenience and necessity of proposed service or the justness and reasonableness of a proposed rate increase, enforcement of the antitrust laws is not within this Commission's jurisdiction. California v. FPC, 369 U.S. 482 (1961). Rather, antitrust considerations are merely one of many public policy concerns that this Commission must balance in evaluating proposed rates or service. Northern Natural Gas Co. v. FPC, 399 F. 2d 953 (D.C. Cir. 1968). Moreover, many of the public policy concerns for which this Commission is directly responsible conflict with the traditional antitrust considerations. For example, in evaluating the public convenience and necessity of a proposed service, this Commission evaluates whether there is a need for the service, and whether the pipeline has the ability (in terms of having adequate long-term reserves and transmission capacity) to provide reliable service. Reliability of service is of great significance given the degree of public reliance on the utility. While antitrust considerations are not inherently antithetical to these other concerns, the appropriate remedy for anticompetitive behavior often may conflict with this Commission's primary responsibility of ensuring adequate reliable service. This Commission is directly responsible for ensuring that a pipeline not undertake additional service if the new service would undermine its ability to provide previously certificated service reliably.

Even if the Commission determines that a pipeline has denied access to transmission facilities in a manner that violates the antitrust laws, our authority to fashion a remedy ordering the pipeline to transport the gas is, at best, questionable. See Florida Power & Light Co. v. FERC, 660 F. 2d 668 (Former Fifth Cir. 1981); Compare Richmond Power & Light of Richmond, Inc. v. FERC, 574 F.2d 610 (D.C. Cir. 1978 (Commission may have authority to compel wheeling as antitrust remedy in certain circumstances) with FPC v. Conway Corp., 426 U.S. 271 (1976) and New York State Electric and Gas Corp. v FERC, 638 F. 2d 388 (2d Cir., 1980). It is well settled that the Commission does not have general authority under the Federal Power Act to order an electric utility to wheel power or to convert the utility into a common carrier. Florida Power & Light Co. v. FERC, supra. This absence of authority is based upon the deletion of common carrier provisions from drafts of the Federal Power Act. Similar provisions were also deleted from the Natural Gas Act. For this reason, I do not believe the Commission has the authority to compel a pipeline to transport gas: pipelines are not common carriers.

To enable this Commisison to foster the development of competitive and flexible markets, legislative language such as that contained in Section 403 of S. 615 may be both helpful and appropriate. Such statutory authority would enable this Commission to provide the incentives necessary to ensure widespread access to both gas supplies and burner-tip markets.

Question 58

So far as pipelines purchase their gas from affiliated producers, they would have an incentive under decontrol not to reduce the price paid for purchased gas, but to increase it, with obvious effects on the gas cap. What has the FERC done in the past to hold down the prices paid to affiliates and what is necessary to assure that payments for affiliated production do not exceed the payments producers under similar circumstances by non-affiliated producers?

Answer

The Commission has initiated numerous proceedings related to the "affiliated entities" question which are at various stages of the regulatory process (see attached listing).

The Commission staff has taken the position in these proceedings that in order to satisfy the affiliated entities test an examination must be made of sales of both price controlled and non-price controlled gas. Such an examination encompasses a review of both price and non-price provisions of the affected contracts and their operation. Company-owned production, which receives producer parity pricing under Commission Orders No. 98 and 102, is included in this review.

In order to determine whether a "comparability test" is satisfied, the Commission staff has taken the position that all comparable arms-length transactions must be examined. These transactions include purchases by the pipeline under review from both its affiliated and non-affiliated producers, amounts paid by other pipelines to producers unaffiliated with them, amounts paid to the subject pipeline's affiliate by pipelines unaffiliated with such affiliate, and amounts paid to other pipelines' affiliates by pipelines to which they are not affiliated.

The above described tests, or other similar tests, could be used in the future to assure that payments for affiliated production did not exceed payments for non-affiliated production under similar circumstances.

(Question 58 - Attachment)

Case Summary

Proceedings in which Affiliated Entities is an Issue:

Company	Docket No.	Status
Cities Service Gas Co.	TA83-1-43	Pending Settlement Negotiations
Columbia Gas Transmission Corp.	TA81-1-21, TA81-2-21	Initial Decision issued December 30, 1982, Pending Commission order
Consolidated Gas Supply Corp.	TA83-1-22	Issue reserved for further Commission Order
El Paso Natural Gas Co.	TA82-2-33, TA83-1-33	Issue in discovery stage of proceeding
Kansas Nebraska Natural Gas Co.	TA83-1-53	Issue in discovery stage of proceeding
Kentucky West Virginia Gas Co.	TA83-1-46	Settlement Agreement filed February 25, 1983
Michigan Wisconsin Pipe Line Co.	TA83-1-48	Issue in discovery stage of proceeding
Southern Natural Gas Co.	TA81-2-7, TA82-1-7, TA83-1-7	Settlement Agreement filed February 28, 1983
Tennessee Gas Pipeline Co.	TA82-2-9, TA83-1-9	Hearing held on March 3, 1983 - Record left open for further investigation
Transcontinental Gas Pipe Line Corp.	TA81-1-29, TA81-2-29	Order issued September 22, 1982, Terminated Proceeding - Purchasing Policy Established
United Gas Pipe Line Co.	TA82-2-11, TA83-1-11	Pending Settlement Negotiations

Question No. 59

Please provide the Committee with specific statutory language for the amendments suggested in your testimony.

Answer

Four specific amendments were suggested in the testimony.

1. It was suggested that only new contracts would be used in calculating the "gas cap price" defined in proposed section 301. Accordingly, proposed NGPA section 111(e) which would establish the filing requirement, would be amended to delete the reference to contracts amended after the date of enactment, and would read as follows:

> (e) FILING REQUIREMENT. -- A purchaser of natural gas subject to a first sale contract executed on or after the date of the enactment of the Natural Gas Consumer Regulatory Reform Amendments of 1983 shall file with the Commission within five days of the date on which the contract is executed--
>
> (1) a summary of the contract and all ancillary agreements, including all pricing provisions;
>
> (2) the prices to be paid under the contract during the first three months of deliveries;
>
> (3) the estimated volumes (in millions of Btu's) to be delivered during the first year of the contract; and
>
> (4) any additional data required by the Commission.

As noted in the testimony, if the proposed change were made to limit the gas cap calculation to new contracts, it might be necessary to limit the volatility of the gas cap price. The definition of "gas cap price" in proposed NGPA section 111(c) could be amended to use deliveries for a larger number of months. Another possibility would be to implement rules which would dampen wide swings in the cap; for example, the amount by which the gas cap could move down or up from one month to another might be limited.

2. It was suggested that the effective date of proposed section 101(a) be delayed to 60 days after enactment in order to give the Commission time to issue implementing regulations.

Accordingly, proposed section 101(a) would be amended to read as follows:

> (a) LIMITATION ON PURCHASED GAS ADJUSTMENTS. -- Notwithstanding section 601(c) of this Act, for purposes of sections 4 and 5 of the Natural Gas Act, from the first day of the first month following 60 days from the date of enactment of the Natural Gas Consumer Regulatory Reform Amendments of 1983....

3. It was suggested that amendments be made to the special purchased gas adjustment procedure outlined in proposed section 101(a) to empower the Commission to approve rate increases based on reasonable projections of future gas costs and to allow the Commission to permit pipelines to collect purchased gas costs incurred before the Commission issues a final decision. The following language is proposed:

> (b) RECOVERY OF ADDITIONAL PURCHASED GAS COST. -- A pipeline may file an application under this subsection with the Commission to increase its rates to reflect any purchased gas cost that subsection (a) of this section prevents it from recovering, including recovery for projected costs of future gas purchases in excess of the allowed rate for purchased gas cost. Following the filing of an application with the Commission under this subsection, the Commission may suspend the collection of any increase to the rates of a pipeline in excess of its allowed rate for purchased gas cost for not less than one day nor longer than such time that the Commission, after opportunity for hearing, issues an order that grants or denies the application, in whole or in part, with such modifications and upon such terms and conditions as the Commission may find necessary and appropriate, including ordering a refund with interest. The proceeding under this subsection shall be conducted by the Commission separately from proceedings on other rate applications that are filed under section 4 of the Natural Gas Act. In any such proceeding, the Commission shall allow recovery if it determines that the costs sought to be recovered were just, reasonable, and prudently incurred. In making this determination, the Commission shall consider the reasonable availability of lower cost supplies to the pipeline and the necessity of such costs for the pipeline to render adequate service to its existing customers. Within sixty days of the date of the enactment of the Natural Gas Consumer Regulatory Reform Amendments of 1983, the Commission shall prescribe rules for applications under this subsection. These rules shall facilitate expeditious decisions on these applications.

4. It was suggested that the reporting requirement in section 101(a) be modified to extend the date for pipelines to report their average purchased gas costs and to allow the Commission time to promulgate implementing regulations. The following language is proposed:

> (a) LIMITATION ON PURCHASED GAS ADJUSTMENTS. -- Notwithstanding section 601(c) of this Act, for purposes of sections 4 and 5 of the Natural Gas Act, from the first day of the first month following the date for filing purchased gas costs under subsection (d), the part of a pipeline's rate that reflects purchased gas costs may not exceed its allowed rate for purchased gas cost, except as provided in subsection (b).
>
> * * * *
>
> (d) REPORTING REQUIREMENT. -- By the forty-fifth day following the enactment of the Natural Gas Consumer Regulatory Reform Amendments of 1983, each interstate pipeline shall report its average cost per million Btu's for purchased gas delivered to it during the month preceding the enactment of the Natural Gas Consumer Regulatory Reform Amendments of 1983, or for an earlier month if data for the month preceding enactment is not available, and the volume of purchased gas delivered to it during that month.

RESPONSES TO ADDITIONAL QUESTIONS
Submitted by Senator Wendell H. Ford

Question 1

I do not necessarily agree that gas prices should be frozen at their present levels, plus inflation. But if the Administration wants to freeze prices for consumer protection, why shouldn't the freeze be applied to the price the seller receives rather than at the price the buyer can flow through?

Answer:

Although one of the indications of the market distortions occurring under the NGPA is rising prices during a period of excess supply, it is not the intent of the Administration's bill to achieve consumer protection by freezing either the wellhead price of gas or the amount a pipeline may flow through under the purchased gas adjustment mechanism. As I understand it, the broader objective is to bring about changes in the gas industry to make the price of gas responsive to shifts in supply and demand. These changes, I believe, will result in considerably greater consumer protection than is occurring under the NGPA.

Even if the purpose of the legislation were to prevent the price of delivered natural gas from rising, that objective would not be achieved by a simple freeze of wellhead prices. As reserves of old, cheap gas are depleted, more expensive gas becomes a larger percentage of any pipeline's supply mix. Thus, even with a wellhead price freeze, the price of gas to consumers would continue to increase.

In contrast, the Administration's bill would set in place a series of mechanisms that are designed to transform the current market from one wherein prices are not responsive to decreases in demand to one characterized by sufficient competition to permit prices to rise or fall as market conditions dictate. In this sense it would largely resemble the market for other commodities, like wheat, steel, or coal. Wellhead prices are not frozen because it is precisely that sort of inflexibility that has led to some of our current difficulties. In a transition period, it is critical that producers and pipelines renegotiate existing, generally inflexible contracts. Such renegotiations would be unlikely to occur under conditions of a price freeze. But while producers and pipelines are renegotiating old contracts and bargaining on the terms of new ones, a temporary price restraining mechanism is needed as a consumer protection device. This comes in the form of a limitation on the pipeline's ability to recover automatically any and all purchased gas costs. As I have indicated in my testimony, I have serious concerns about the procedural form of this limitation. With somewhat revised procedures, however, I believe that such a mechanism can serve to insure that the transition to a competitive, free market is a relatively smooth one, while at the same time creating circumstances favorable for the rationalization of the terms of old and new gas supply contracts.

Question 2

If we freeze the amount of gas purchase costs the interstate pipelines can flow through, isn't it logical that the pipelines will not buy new gas supplies except under a precedent condition that FERC approve the passthrough by the pipeline of the gas purchase price?

Question 3

If this happens, won't we back in the situation of FERC price controls (albeit indirectly) which created the gas shortage and brought about the need for the passage of the NGPA?

Question 4

The Administration says that this bill will afford consumer protection from price increases by preventing the interstate pipeline companies from passing through natural gas price increases in excess of inflation. Does this same passthrough freeze apply to intrastate pipelines?

Question 5

If we freeze the interstate pipelines' right to flow through gas price increases and leave the intrastates with freedom to pass on price increases, will we not recreate a dual market in which the interstate pipelines can no longer compete? In other words, doesn't the Administration bill recreate most, if not all, the problems the NGPA was designed to solve?

Answer:

Whether the limitation on purchased gas adjustments would tend to create a dual market will depend largely on whether workable procedures can be developed for allowing a pipeline full recovery of purchased gas costs in excess of the allowed rate where those costs are found to be just, reasonable, and prudent. To be workable, the procedures provide for two things. First, they must allow rates to be based on projected future costs; this is necessary in order to avoid new monthly rate filings from every pipeline with costs above its allowed rate. Second, they must allow full recovery, but no more than full recovery, incurred between the time that the pipeline files for a rate increase and the time that the Commission makes a final decision if the costs are found to meet the substantive standard. If the procedures established under Section 101 permit the Commission to make a final decision within a relatively short time, full recovery might be accomplished by positive or negative surcharges added to the pipeline's rates after the final decision; such surcharges are now used under the Commission's PGA procedures to correct for errors in past cost projections. However, if the time required for a final decision would be comparable to that required under the Commission's current Section 4 rate case procedures, it may be necessary to allow pipelines to collect rate increases subject to refund.

If workable procedures cannot be developed, then the limitation on the recovery of purchased gas costs in Section 101 would tend to discourage pipelines from acquiring new supplies if the acquisitions would increase their gas costs above the allowed rate. Such pipelines thus would be at a bidding disadvantage with respect to two groups of pipelines. The first would be the intrastate pipelines, which would by law not be subject to the limitation on recovery of purchased gas costs. The second would be those interstate pipelines that could follow reasonable gas purchasing practices without reaching the allowed rate. The magnitude of this problem would depend on the number of pipelines that found it difficult or impossible to stay under the allowed rate. This number would in turn depend on several factors: the level of the gas cap; the additional price reduction resulting from the limitation of take-or-pay obligations to 70 percent; the rate of decline in pipelines' old gas reserves; and the amount of new gas needed to meet expected future demand.

However, it would be much less significant than the dual market problem created by federal price regulation prior to enactment of the NGPA. The number of pipelines affected would be smaller; the bidding constraint on those pipelines is less rigid; and the problem would last only until 1986. I am not now able to estimate the magnitude of the problem.

Question 6

Scrutiny of the bill reveals that a pipeline's automatic pass-through of purchased gas costs is restricted to that pipeline's average cost of gas in the month prior to passage plus inflation. If a pipeline has managed its business in an efficient manner and has held its purchased gas costs down, would the efficient pipeline not be at a competitive disadvantage with the high cost pipeline in acquiring new gas reserves? Would the high cost pipeline not be in a position to raid the efficient pipeline's old gas supply on January 1, 1983, when all producers could break their old gas sales contracts? I would appreciate your comment on why the Congress should reward inefficient pipelines and penalize the efficient ones.

Answer:

It appears that a number of factors have contributed to the current differences in average gas costs among pipelines. A detailed management audit would be necessary in order to determine the relative importance of managerial skills among those factors, but it is plausible to suppose that management decisions did contribute to higher gas costs in some cases.

To the extent that this is the case in an ideal world, arguably the burden of those high costs should be placed principally on pipeline investors. In practice, any measure that relieves pipeline customers from the burden of unnecessarily high gas costs is likely to benefit pipeline investors as well.

Question 7

A pipeline's purchased gas costs includes gas that it purchases from another pipeline. If the selling pipeline's increased rates are found to be just and reasonable by FERC, can the purchasing pipeline pass those increases through without restriction if S. 615 is enacted?

Answer

As S. 615 now reads, a pipeline cannot pass through increased purchased gas costs above the rate of general inflation even if the increased costs are the result of a rate increase granted by FERC to a pipeline supplier. A special proceeding under section 603(b) would have to be held to determine if the costs sought to be recovered were "just, reasonable, and prudently incurred." Of course, the Commission, in prescribing rules for applications under section 603(b), may be able to arrange for expeditious handling of certain cases. Pass-through of cost increases due to upstream pipeline rate increases is an obvious candidate for expeditious handling. However, S. 615 mandates the opportunity for a hearing, and this may result in unavoidable delay.

Question 8

I will appreciate your estimate of the price fly-up that will occur when the cap is removed on January 1, 1986, and the assumptions used in making that estimate.

Answer

I believe that S. 615 will allow pipelines and producers to establish new contractual price clauses that will link the field price of natural gas much more closely to conditions in the burner-tip market. The price of natural gas after January 1, 1986, therefore should be near the market-clearing level on each pipeline system. A price fly-up therefore should occur in 1986 only where a pipeline's average gas cost was below the market-clearing level at the end of 1985. Whether any pipeline's 1985 average gas costs would be significantly below the market-clearing level under S. 615 probably would depend both on the price of alternative fuels and on the operation of the limitation on PGA passthroughs. To the extent that this limit had prevented a pipeline from pursuing reasonable gas acquisition and renegotiation practices, there might be a price increase at the beginning of 1986. The level of such an increase is not subject to accurate estimation.

Question 9

It would appear that substantial supply disruptions for interstate pipelines would occur on January 1, 1985, when producers break their old gas contracts. I will appreciate your projection of these potential disruptions on a best-and-worse case basis. What, if any, emergency measures do you suggest that Congress take to protect consumers on January 1, 1985?

Answer

Without labelling any case as "best" or "worst," I would like to describe what appears to be the potential range of outcomes. In general terms, the reciprocal market-out clause will tend to establish a national market-clearing price. That price may in turn require some reallocation of reserves, to reflect the amount of gas that each pipeline can sell based on a relatively uniform national field price. That reallocation would occur eventually under the NGPA. It is likely to be accelerated under S. 615, but how fast it would occur even under S. 615 is subject to some uncertainty.

The uncertainty has two sources. First, it is uncertain how much of the adjustment may occur before 1985 through contract renegotiation. The likelihood that a contract will be renegotiated depends on a number of factors, such as the termination date of the contract and the volume of reserves left to be delivered, and also on the response of pipelines and producers to those factors. The second source of uncertainty concerns the practical operation of the reciprocal market out clause in 1985. If contracts can be negotiated with new buyers or sellers without significant delay or cost and gas can be readily and cheaply transported from one pipeline purchaser to another, then a uniform national market-out price will quickly emerge. For example, one pipeline could not invoke market-out at $2.50 if all other pipelines were doing so at $2.75, since the first pipeline would suffer large losses of reserves to the other pipelines. Similarly, on the other side, a producer could not successfully invoke market-out at $3.25 if other producers were invoking it at $3.00, since the first producer would not be able to find another buyer at $3.25.

In practice, however, shifts of reserves from one pipeline to another may involve costs and delays. The reallocation of reserves therefore may not occur immediately, although it probably would occur more quickly under S. 615 than it would under the NGPA.

The reallocation of reserves just described would lead to a more efficient use of the nation's natural gas resources. Moreover, as I have noted, the reallocation will eventually occur even under the NGPA. If the Congress wishes the reallocation to occur more slowly, there appear to be several alternatives available to it. One is to increase the advantage of the existing pipeline purchaser in bidding to retain its reserves. This might be done, for example, by giving it a right of first refusal. Another alternative would be to delay the effective date of the reciprocal market-out clause. Finally, a third alternative would be to replace the statutory market out for section 104 gas with a provision that would statutorily "ramp" section 104 prices up to the gas cap. Between now and 1985, the aggregate impact effect of such a provision would be similar to that of gradual renegotiation of the section 104 contracts; in 1985 such a provision would require pipelines to pay a market-based price for such gas but would not threaten them with the loss of reserves.

RESPONSES TO ADDITIONAL QUESTIONS
Submitted by Senator Bill Bradley

Question 1

Would the price of old gas under decontrol be any different if we were to tax 80 percent of the difference between the old NGPA controlled price and the market price for that gas?

Answer

The effect of any tax on the difference between the old NGPA controlled price and the renegotiated higher price is difficult to project with certainty. A possible effect, however, is that some producers would seek a higher price so that their after-tax cash flow could be maintained at some "target" level. If the "target" level were not attainable, some producers might be obligated to reduce their exploration and development expenditures for natural gas. In this connection, it must be borne in mind that a combination of market events and the enactment of S. 615 would sharply curtail producer revenues available for drilling even without an additional tax. A further reduction in revenues resulting from a windfall profits tax would probably badly aggravate the problem of reduced drilling levels.

As indicated in answers to other questions, combinations of market variables have led to contracting sales and a consequent surplus of deliverability in the market for natural gas. Likewise, it is possible to anticipate a combination of variables that could lead to future shortages. First, as a geological matter, supplies of gas from the Gulf Coast area (traditionally, the most significant of our gas producing area) are expected to decline sharply after 1985. While current deliverability excesses are likely to push the occurrence further into the future, they also have led to sharply reduced current drilling. A reduction in gas prices will tend to aggravate this problem although it should also lead to a lessening of the market-loss problems. The additional imposition of a windfall profits tax could thus be seen as having a seriously negative effect on drilling to the extent that it further reduces the pool of capital available to find reserves necessary to replace the depleted Gulf Coast reserves. A failure to replace these reserves would lead to shortages, to higher prices, or to both. Thus, under this scenerio the suggested tax could result in a higher price for old gas, and for gas in general, than would be necessary absent that tax.

Another possible effect of the tax suggested by this question is that there could be a disincentive for producers to renegotiate old gas prices to higher levels. This is possible because although the producers would retain only 20 percent of the price increase, 100 percent of the renegotiated price would be reflected in the "gas cap". The "gas cap" would effectively limit the price that a pipeline would be willing to pay for new gas. Since new gas would not be subject to this tax, some producers would likely see a benefit in maintaining the low-price gas cushion (i.e., discourage price renegotiations) so that these same producers could obtain a higher price for new gas.

Question 2

What problems can you see with an old gas tax that establishes three categories of gas based solely on the date the well was spudded? For example, we could tax wells spudded --

a. prior to 1/1/73 at x% of the difference between the market price and $1.08 (ceiling price as of 3/83),

b. between 1/1/73 and 12/31/74 at x% of the difference between the market price and $1.92, and

c. between 1/1/75 and 2/18/77 at x% of the difference between the market price and $2.27.

No other criteria (spacing, depth or NGPA price) would be considered.

Answer

First, because section 202 of the proposed legislation would remove such old gas from the Commission's jurisdiction on January 1, 1985, or earlier if subject to a contract that is executed or amended after the date of enactment, the Commission could not police evasion of the vintages suggested without specific authority.

Second, Congress must make clear the meaning of "spud date" for purposes of any proposed tax bill as that term is to some extent ambiguous under the NGPA. See *L&B Oil Co. v. FERC*, 655 F.2d 758 (5th Cir 1982). The question is currently before the Commission whether the term "spud date" includes reentries of plugged and abandoned wells.

Finally, all old gas is not vintaged by the spud date of the well. Significant quantities of gas, such as recompletion, rollover gas and intrastate gas are being sold at prices not relevant to the spud date of the original borehole. The basis of taxable revenues as defined by the above criteria would not necessarily correspond to the incremental revenues received by a seller nor to the incremental profit available to that seller. In addition, gas presently subject to the same NGPA ceiling prices would be taxed differently under the above criteria. The same problems discussed in 1 above would also apply to this question.

Question 3

How can we instill competition among pipelines transporting gas? How would FERC implement the Administration's proposals to do this? Could you describe in some detail how PSE&G in New Jersey, for example, could buy gas directly from producers in Louisiana, Texas, or Oklahoma?

Answer:

When the Natural Gas Act was passed, most markets were served by only a single pipeline. Given the greater number of interstate and intrastate lines now in operation, the large number of interconnections among pipelines, and the greater integration of pipeline facilities made possible by Section 311 of the NGPA, however, competition among pipelines now is possible in many markets. Pipelines need not have parallel routes in order to compete effectively with respect to the transportation of gas. Competition is possible so long as the two pipelines serve either the same producing areas or the same burner-tip markets.

The Administration's bill would afford purchasers and producers the opportunity to deal with each other either directly or through brokers. The bill thus would introduce competition between pipelines and brokers with respect to the creation of markets between producers and purchasers. This should induce pipelines to place more emphasis on their function as transporters rather than as resellers, and with greater integration of pipelines and greater flexibility for them to transport on behalf of each other, pipelines will have greater flexibility to compete with each other for the right to haul gas.

To foster this competition, the FERC would need to encourage further integration of the existing pipeline network by encouraging pipelines to transport gas on behalf of each other. Sections 401 and 402 of the Administration's proposed amendments encourage such integration. The Commission would also need to permit, to the greatest degree possible consistent with the public interest, self-implementation or blanket authorization of transportation arrangements. The Commission is now considering such procedures in a rulemaking proceeding.

PSE&G could purchase gas directly from producers in Oklahoma, Texas or Louisiana either by dealing directly with these producers or by using brokers. Both methods were used during curtailments under the Commission's Order No. 533/Order No. 2 program that provided for interstate transportation of gas sold directly by producers to high-priority end-users. PSE&G,

the broker, or the producer could then arrange for transportation. This could involve direct hauls by the interstate pipelines serving PSE&G, that is, Transcontinental Gas Pipe Line Corp., Texas Eastern Transmission Corp. or Tennessee Gas Pipeline Co., or by these interstate pipelines in combination with intrastate pipelines. Alternatively, the parties could arrange for back haul transportation or transportation by displacement. For example, National Fuel in New York, which is served by Texas Eastern, could sell gas to PSE&G and provide the transportation by reducing its own takes from Texas Eastern or Northern Natural Gas Pipeline, or Natural Gas Pipeline Company of America, both of which purchase significant volumes of gas in Oklahoma. Also, National Fuel could sell gas to PSE&G with back haul deliveries by various intrastate or interstate pipelines from Oklahoma to interconnections with Texas Eastern, Transco or Tennessee.

Question 4

What problems stand in the way of a national market in natural gas wherein competition among pipelines will even out the price disparities that now exist across the country? Please discuss in some detail.

Answer:

The main problems standing in the way of a national market in natural gas are factors that induce pipelines to prefer reselling their own system supplies over transporting gas for others. The NGPA left the various pipelines with different inventories of low-cost gas. Given the uneven distribution of the old gas cushion, certain pipelines are able to market their gas at considerably lower prices than others. While a pipeline with a large gas cushion, Pipeline A, would have an incentive to compete with a higher cost pipeline, Pipeline B, at the distribution or burner-tip level, Pipeline B would currently have an incentive not to provide the necessary transportation for that competition. The principal current source of that incentive is that Pipeline B can minimize its take-or-pay exposure only by selling its own gas.

The Administration's bill would rectify price disparities between pipelines in two ways. First, by encouraging renegotiation of contracts and legislatively authorizing market outs, the proposed legislation would allow most gas prices to move toward market-clearing levels, thereby eliminating both the gas cushion and excessive gas prices. Second, by enabling pipelines to reduce their take-or-pay exposures and to appropriate revenues from transportation for others, and by promoting further integration of existing pipeline facilities, the proposed legislation minimizes those factors that currently discourage pipelines from transporting gas for others. With increased willingness of pipelines to transport gas for others, other pipelines should have greater access to non-traditional markets, and any remaining pricing differentials among pipelines should largely be eliminated.

March 30, 1983

RESPONSES TO ADDITIONAL QUESTIONS
Submitted by Senator Bill Bradley

Question 5

Can you give me some estimate of the effect of old gas decontrol on average natural gas prices on a pipeline by pipeline basis?

Answer

The central theme of the Administration's bill is its reliance on market forces to determine the price of natural gas. In a properly working market, the price of natural gas will be restrained through competition with other fuels at the burnertip. The most price-sensitive gas customers are large boiler fuel users. Typically, a large boiler with installed alternative fuel capability can be switched from natural gas to another fuel in a matter of hours. Although natural gas competes with a variety of fuels for a variety of purposes, the lowest priced fuel that competes with gas for the boiler fuel market is high-sulfur residual oil.

In Table 5-1 the weighted average cost of purchased gas (WACOG) for 20 major interstate pipelines is compared to an estimate of the market-clearing price of gas. High-sulfur residual oil is presently selling for around $23.25 per barrel. This is equivalent to $3.72 per MMBtu. If the price of natural gas at the burnertip exceeds this level by more than a few cents, the large boiler fuel customers will begin to switch. This effective limit of $3.72 at the burnertip imposes a lower limit on the price of gas at the wellhead. The wellhead price plus the costs of transmission and distribution must be no higher than the competitive burnertip price. Of course, the costs of transmission vary greatly - both with the pipeline in question and, in many cases, with the distance the gas must be transported. Distribution costs also vary greatly. However, the minimum cost level can be approximated by assuming that 80 cents per Mcf is charged for transmission, and that no distribution charges are incurred (a direct industrial customer would pay no distribution charges). When the average pipeline costs of 80 cents are subtracted from the competitive burnertip price of $3.72, a rough estimate of the market-clearing wellhead price is found to be $2.92 per Mcf. Table 5-1 indicates the amount by which the average cost of gas is over or under $2.92 on the 20 major pipelines. It must be remembered that pipeline transmission costs will vary, and some pipelines may serve areas in which environmental concerns require the use of higher-cost low-sulfur residual fuel oil as the alternate fuel. Thus, the table is intended to depict the average state of the market, and not the exact competitive situation of any particular pipeline.

Even with its limitations, Table 5-1 clearly indicates that the majority of pipelines have WACOGS above market-clearing levels. Thirteen of the 20 pipelines are above the equilibrium price while only seven are below it. This tends to suggest that the average price of all natural gas is slightly above what the market will bear. Over time, as contracts are renegotiated, a properly operating market will allow prices to converge on the equilibrium level. Higher priced contracts will be renegotiated downwards; lower priced contracts will be renegotiated upwards. The variation in wellhead prices will decrease as more and more of each pipeline's supply is renegotiated to the market-clearing price. This means that the cost of deregulated gas will tend to drop at the same time that the cushion of cheap regulated gas is eliminated.

TABLE 5-1

Company	Weighted Average Cost of Gas Purchased	Difference Between Weighted Average Cost and Market-Clearing Price of $2.92
Cities Service	$2.524	(0.40)
Colorado Interstate	2.899	(0.02)
Columbia	3.927	1.01
Consolidated	3.695	0.79
El Paso	2.827	(0.09)
Kansas-Nebraska	2.065	(0.86)
Florida Gas	2.763	(0.16)
Michigan Wisconsin	3.052	0.13
NGPL	2.576	(0.34)
Northern	2.714	(0.21)
Northwest	3.374	0.45
Panhandle Eastern	3.188	0.27
Southern	3.127	0.21
Tennessee Gas	3.091	0.17
Texas Eastern	2.966	0.05
Texas Gas	2.966	0.05
Transcontinental	3.124	0.20
Transwestern	3.081	0.16
Trunkline	4.045	1.13
United	3.426	0.51

( ) indicates weighted average cost is below estimated market-clearing prices.

Question 6

Can you explain why there is such a large variation in gas prices across regions of the country? How would S.615 affect those variations?

Answer

Gas prices vary across the country generally because they reflect variations in costs, variations in the pipelines' market mix, variations in rate design objectives of both gas distributors and pipelines, and variations in policies of State and local regulators. The variations in the pipelines' rates are substantially a reflection of differences in the costs of gas supply, which is by far the largest single cost item to be recovered. To a lesser extent, variations in pipeline rates are due to the pipelines' relative costs for transmission, storage, gathering and conditioning operations. While S.615 could result in higher utilization of installed facilities and thereby reduce unit costs, this will not necessarily translate directly into changes in regional gas price variations.

The sales rates of interstate pipeline companies reflect an average systemwide rolled-in cost of gas supply. The cost of gas supply is determined generally by an individual company's current mix of gas purchased under various NGPA price categories and its company-owned production, if any. Company-owned production is valued either through cost-of-service determination or through application of NGPA pricing, or a combination of these. Gas supply costs for certain pipelines are also affected by varying volumes of liquefied natural gas (LNG) supplies and imported (Canadian and Mexican) supplies.

Most larger interstate pipeline companies acquire their gas supplies from more than one supply area. These supply areas do not contribute equally to each pipeline; nor is gas available to different pipelines on a pro-rata basis where the same general supply areas provide common sources. The cost of gas from one supply area can vary significantly when compared to another supply area because of dissimilar volumetric weighting of applicable NGPA category under which the gas is priced. Further, even where pipelines purchase from the same general gas supply areas, their sales rates can vary materially. This results because of variances in the pipelines schedules of gas purchases and injections and withdrawals of gas from storage to meet their individual market requirements. System-wide average purchase gas costs among the pipelines companies can vary further because of different policies regarding gas acquisitions. Among these are the extent of pipeline purchases from another interstate pipeline(s), the extent or ability to rely on imported gas supplies, and the extent it relies upon synthetic natural gas supplies.

As stated above, regional variations in gas prices are caused, to a lesser extent, by differing transmission costs among pipelines. Transmission costs differ among pipeline companies because of factors such as distance between supply and market areas, age of facilities, and the extent of capacity usage. Transmission costs are substantially a direct function of distance of transportation; the longer the distance, the higher the costs. Older pipelines, of similar size to newer pipelines, have lower initial sunk investment costs. Under the cost-of-service method used by FERC, higher accumulated booked depreciation reserves result in lower return, taxes and current depreciation expenses. A higher use of the capacity of a system results in fixed costs being charged to a greater volume throughput, and thus a lower unit fixed cost.

S. 615 could reduce variations in gas prices by moving to a more uniform purchase price for domestic gas. However, variations could continue depending upon features such as the relative importance on a regional basis of dissimilarly priced imported natural gas or imported liquefied natural gas. Regional differences in transmission and distribution costs would, of course, be largely unaffected, except to the extent that load factors are higher as a result of enactment of S. 615.

Question 7

What are the benefits and costs of these variations?

Answer

Variations in prices of gas in the market place are caused primarily by the gas supply mix of the individual pipeline companies, the distance of transportation to the various markets, and several other features mentioned in answer 6, above.

The benefits and costs of these variations are difficult to quantify. A "benefit" to one region or class of gas customers may translate into a "cost" to another region or class of customers. Some benefits of low gas prices are that they should provide for a greater proportion of spendable income available for purposes other than utility and fuel costs. They may also require less expenditures for complying with environmental safequards that would be required if energy forms other than natural gas were used. Because income levels and environmental considerations are not constant on a national level but reflect, generally, the type of economies and environments on a regional level, generalizations of "benefits" are not practical. The same is true of "costs."

Question 8

Do the costs of removing these variations exceed the benefits? Please explain in some reasonable detail.

Answer

A substantial part of gas price variations could be eliminated by S. 615. This could occur because of the operation of the "national rate" mechanism and its possile effect of establishing a more uniform level of purchased gas costs. However, some variations in purchased gas costs would likely still occur if, for example, the prices of imported gas or synthetic gas were significantly different from the predominant comparable prices available for domestic gas producers. Also, the types and strengths of regional and local economies could be instrumental in maintaining some difference in the purchased gas costs of different pipelines. Additionally, the availability and price of alternative fuels in a given region could influence the level of purchase gas costs that the pipeline serving that region would be willing (and financially able) to incur. Finally, rates could be reduced through increases in load factors as a result of enactment of S. 615.

Certain physical features influencing gas price variation could not be overcome. For example, the distance between a given gas supply and a given market could not be changed. Also, geological features that determine whether underground gas storage is feasible could not be changed.

In summary, although S. 615 should decrease some of the regional gas price differences, some price variations would likely remain because the cost of their removal would, as a practical matter, exceed any probable benefits.

Question 9

Does the existing network of natural gas pipelines provide enough redundancy to permit competition in a natural gas transportation industry? Please provide some reasonable level of regional detail, including but not limited to the Mid Atlantic and Northeast regions.

Answer

From the standpoint of gas transportation competition, redundancy can be measured by spare capacity and by the number of pipelines serving a given market area.

In general the pipeline network is designed with very little spare capacity. Pipelines are normally sized to serve contract demand on a peak day with a limited degree of redundancy for colder than normal weather and potential equipment down time. In recent years most systems have had no spare capacity on peak days. During offpeak conditions, spare capacity is normally available for interruptible transportation except when off-peak capacity is fully dedicated to underground storage injection. Recent market load loss suffered by interstate pipelines has created some spare capacity, primarily in the Midwest. Future spare capacity however depends on, among other factors, whether and to what extent industrial loads are regained and retained.

It is fairly certain that significant shifts of transport gas between pipeline transporters would require capacity expansions.

Our review indicates that 54% of metropolitan areas with populations over 200,000 receive gas supply from two or more pipelines. The breakdown by census region appears below.

Often a pipeline competes in one or more major markets, but is the sole supplier to many other distributors along its route. If a pipeline offers transportation services in one area in which it competes, similar services must be available to its other customers on a non-discriminatory basis pursuant to §4(b) of the NGA.

Census Region	Total Number of Areas over 200,000 Population	Number served by two or more pipelines	Percent
Pacific	24	16	67%
Mountain	8	4	50
West North Central	7	2	29
West South Central	10	7	70
East North Central	30	21	70
East South Central	9	5	56
South Atlantic	34	8	24
Mid Atlantic	27	19	70
New England	11	5	45

Note: Includes both intrastate and interstate pipelines.

Even though most market areas have access to more than one pipeline system, the location of a potential shipper's supply may reduce that shipper's options to a pipeline which has access to both that shipper's supply area and the shipper's market.

It should be noted that transportation availability may be restrained if pipelines are reluctant to transport gas which may compete with their own gas sales. In some cases, pipelines may require shippers to take full contract sales volumes from the pipeline before tendering transport gas. Even with willing pipeline transporters, minimum bill requirements in pipeline service agreements may limit the ability of a distributor to reduce pipeline takes and substitute independently acquired supplies. This would probably be more important during periods of economic down-turn and unusually warm weather rather than on a continuing basis.

Price competition in transportation services is generally limited by cost based ratemaking. Transport rates for forward hauls are normally based on system average costs. Pipelines may have significantly different average costs due to differences in system configuration, age of facilities, load factor and operating costs.

Competition in transportation is likely to center on contract terms such as demand charges, restrictions on transports in lieu of pipeline purchases, fuel retention, firmness of service, and other non-price issues.

Question 10

Where would you expect bottlenecks?

Answer

Bottlenecks can be expected to occur whenever purchaser-supplier patterns change significantly.

Transportation of a gas supply previously unconnected to a given pipeline system may encounter bottlenecks in supply area connecting lines and intermediate trunk lines, possibly in main trunk lines, and almost definately in storage area to market lines.

Gas transported pursuant to proposed Sections 303 and 403 which was previously connected to a given pipeline may encounter capacity problems even if the physical origin and destinations remain the same. When a pipline terminates a given supply contract, capacity mav be rededicated to a replacement supply. The capacity would not then be available to producer or distributor wishing to have the terminated supply transported. Similar problems may occur in trunk lines or market area lines.

Geographically it is difficult to predict where bottlenecks will occur, but generally Gulf Coast and Southwest supply areas and Northeast market areas are likely candidates.

It should be noted, however, that in current practice bottlenecks are alleviated by pipeline capacity expansions after market and supply justification before the FERC.

Question 11

Where would you be concerned about the lack of competing pipelines?

Answer

Most market areas, with certain exceptions are served by more than one pipeline. Concern with the lack of competing pipelines is somewhat alleviated by cost based regulation.

In supply areas some gas reserves are often accessed by only one pipeline. In such instances, competition to purchase the gas supply could be limited to the pipeline with physical access to the gas reserves. Pipelines in need of gas supply are often reluctant to transport gas for others but would rather purchase the gas to satisfy the needs of their existing customers. Competing purchasers generally attempt to build their own pipeline system if adequate transportation arrangements cannot be negotiated with pipelines having physical access to the supply in question and if sufficient reserves exist to justify the entry of a new pipeline.

QUESTIONS FROM VARIOUS REPUBLICAN MEMBERS OF THE COMMITTEE

1. Please provide the Committee with the specific legislative language necessary to implement those changes to the Administration's bill, S. 615, that you identified in your oral and written testimony as being necessary. Also please provide the Committee a justification for each of your recommended changes.

2. Please provide the Committee with your estimate of the amount by which gas prices would increase or decrease, both over the short-run and over the long-run if S. 615 is enacted.

3. Please provide the Committee with your estimate of the amount by which gas supplies and gas reserves would increase or decrease, both over the short-run and over the long-run, if S. 615 is enacted.

4. Please provide the Committee with your estimate of the level of the gas cap if S. 615 were enacted today and the amount by which the cap would reduce average purchased gas costs.

5. Some witnesses appearing before the Committee have suggested that enactment of S. 615 would bring about chaos in the gas market. Please provide the Committee with your assessment of the prospect of that occurring.

MINORITY MEMBERS' ADDITIONAL QUESTIONS FOR

NATURAL GAS HEARING RECORD

WITNESSES APPEARING MARCH 12, 1983

QUESTIONS FOR PANEL ONE

1. Do you support any of the bills pending before the Committee on Energy and Natural Resources? If so, please indicate which one(s).

2. Please provide the Committee with specific statutory language for any amendments you would like to see adopted if the Committee were to use S. 615 as a mark-up vehicle for natural gas legislation.

3. If the amendments you support are not adopted, and if you personally had to vote up or down on S. 615, would you support it or would you support a continuation of the existing law?

4. If controls are removed in the manner proposed by the Administration, or in any other manner, will prices rise or fall? By how much? Why?

5. If prices fall, how much will production fall?

6. Can you explain specifically and in detail why prices are not falling now?

7. Giving a broad interpretation to the Natural Gas Act and the Natural Gas Policy Act, what authority might the FERC have to remove any barriers that exist at the present time to the fall in prices? Could its authority under Sec. 601(c) of the NGPA, concerning limitations on passthroughs in the event of "fraud, abuse, or similar grounds", be interpreted to provide such authority? Could its rulemaking authority under Sec. 501(a) of the NGPA be used to rectify the situation?

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GAILE ARGIRO
Treasurer

March 31, 1983

Honorable John Melcher
United States Senator
SH 730 Hart Senate Office Building
Washington, D.C. 20510

Re: NARUC Position on Natural Gas Issues Affecting Indian Tribes

Dear Senator Melcher:

During the March 12, 1983 hearing before the Committee on Energy and Natural Resources concerning pending natural gas legislation, you requested the NARUC's representative, Chairman Laura L. Murrell of the Kentucky Public Service Commission, to provide for the record the NARUC's position on two policy questions. Those questions were:

(1) What is the NARUC's position as to whether States have jurisdiction over natural gas produced on Indian reservations?

(2) What is the NARUC's position as to whether Indian tribes may engage in joint ventures with respect to exploration and development of gas production on Indian lands?

Although some NARUC members may well have a definitive response to these questions, our Association as a whole has taken no position on either of them.

We appreciate your interest in the NARUC's perspectives on natural gas policy. If I can be of any additional assistance to you or your staff concerning such matters, please feel free to contact me.

Sincerely,

Rita A. Barmann
Director of Congressional Relations

cc: Hon. Laura L. Murrell
Members, Senate Committee on
Energy and Natural Resources

National Association of Regulatory Utility Commissioners

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March 31, 1983

Hon. Wendell H. Ford
United States Senator
SR-173A Russell Senate Office Building
Washington, D.C. 20510

Re: Impact of NGPA's Title II on State Regulation of Natural Gas Retail Rates

Dear Senator Ford:

At the Committee on Energy and Natural Resources' March 12, 1983 hearing on natural gas legislation, you requested further information from the NARUC's representative, Chairman Laura L. Murrell of the Kentucky Public Service Commission, regarding the impact of Natural Gas Policy Act of 1978's (NGPA's) mandatory incremental pricing provisions, as contained in the NGPA's Title II, upon State natural gas retail rate regulation. This letter will respond to your information request.

There were at least three objectives underlying the congressional decision to require Federally-formulated incremental pricing of gas purchased by certain industrial users from interstate pipelines. One was to protect high priority users from increased gas costs resulting from the potential decontrol of wellhead prices provided in Title I of the NGPA. A second purpose was to prepare gas markets for an orderly transition to a deregulated environment. Finally, Congress hoped to encourage conservation of gas through increased prices, short of creating the impetus for fuel-switching.

In our view, not only do the results of incremental pricing fall far short of these admirable goals, but they confirm the rationale behind NARUC's initial position against enactment of Title II: that Federal intrusion into retail ratemaking matters is impractical at best, and at worst, significantly thwarts effective State regulation of gas utility rates and service. Despite incremental pricing, residential and commercial gas consumers have not been spared the burden of rapidly rising gas bills, even in the face of serious conservation efforts. Moreover, fuel-switching by industrial users has become a problem of major proportions in most parts of the country.

Title II of the NGPA provides that most large industrial boiler consumers of gas which purchase supplies, either directly or indirectly, from interstate pipelines are to be assigned the incremental cost of new gas. These industrial facilities are required to absorb this surcharge until their gas costs equal the cost of alternative fuel, which the FERC has designated as No. 6 oil.

Title II also places specific restrictions on the States' regulatory discretion with respect to the incremental pricing surcharge on industrial users. Under Section 205, State regulatory commissions are required to pass through directly to incrementally priced industrial users any surcharge paid by a local distribution company for gas purchased from interstate pipelines. In addition, the States are forbidden from modifying rates for incrementally priced industrial users such that the surcharge would be offset.

The troublesome nature of these restrictions on State regulatory authority is especially apparent under today's natural gas market conditions. Automatic imposition of the incremental surcharge on large industrial users makes them extremely sensitive to gas price increases. Their fuel-switching capacity already causes such users to place a lesser value on natural gas service; mandatory incremental pricing only exaggerates this tendency, making conversion to alternative fuels more attractive. The impact of industrial load loss on a gas utility's remaining customers is direct and inevitable: it increases the fixed plant costs which must be shared by all ratepayers, thus causing residential and commercial retail gas rates to rise.

According to the FERC's Office of Regulatory Analysis, sales by gas utilities to industrial customers during the last part of 1982 hit their lowest level in the last five years. Incremental pricing as mandated by the NGPA unquestionably limits the States' ability to respond to this reality, and thereby protect the interests of all gas consumers.

Title II's prohibition against industrial rates which offset the incremental pricing surcharge places an additional administrative burden upon the State commissions. Because of the considerable surplus of gas supplies which exists today, utilities have a very strong incentive to design industrial rates which would effectively mitigate the surcharge's impact. In order to comply with Section 205 of the NGPA, State regulatory bodies must devote staff resources to see that industrial gas rates are not of this character.

Another flaw in the incremental pricing scheme relates to the fact that the surcharge is imposed without regard to whether the gas is contracted for on an interruptible basis. Industrial users are thus discouraged from entering into interruptible service contracts, since the economic attractiveness of such arrangements is greatly reduced or eliminated. Gas distribution companies benefit from having interruptible customers; for example, this allows them to meet peak demand during the heating season without adding storage capacity. Under Section 111 of the Public Utility Regulatory Policies Act of 1978, electric utilities are required to encourage customers to accept interruptible service. Incremental pricing serves to impede this same goal in natural gas markets.

In sum, the members of the NARUC firmly believe that experience has shown incremental pricing to be a manifestly unwise Federal policy that interferes with the States' ability to ensure least-cost gas service to all consumers. We

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GAILE ARGIRO

Official Committee File

April 1, 1983

SENATE COMMITTEE ON
ENERGY AND NATURAL RESOURCES
RECEIVED
APR 5 1983
WASHINGTON, D.C. 20510

Honorable James A. McClure
Chairman
Committee on Energy and Natural Resources
United States Senate
Washington, D.C. 20510

Re: Responses to Written Questions
Concerning Pending Natural Gas
Legislation

Dear Senator McClure:

Set forth below are the NARUC's responses to questions submitted from the Committee's majority and minority members following the appearance on our Association's behalf of Chairman Laura L. Murrell of the Kentucky Public Service Commission at the March 12, 1983 hearing on pending natural gas legislation.

Questions From Majority Members

> Question 1. Please provide the Committee with the specific legislative language necessary to implement those changes to the Administration's bill, S. 615, that you identified in your oral and written testimony as being necessary. Also please provide the Committee a justification for each of your recommended changes.

Answer: Attached to the NARUC's prepared statement submitted at the March 12 hearing was a comprehensive package of proposed legislation to amend the Natural Gas Policy Act of 1978 (NGPA) which the Association endorsed earlier last month. This proposed legislation has since been introduced as S. 823, sponsored by Senator Roger Jepsen of Iowa.

The NARUC strongly supports enactment of S. 823 in lieu of S. 615, the Reagan Administration's proposal. For a justification of this position, please refer to our prepared statement.

> Question 2. Please provide the Committee with your estimate of the amount by which gas prices would increase or decrease, both over the short-run and over the long-run if S. 615 is enacted.

Answer: The NARUC has not conducted an independent analysis of S. 615's likely impacts on gas prices. Our members generally are of the view that Congress should leave Title I of the NGPA intact while addressing other defects in the law (and in the FERC's interpretation thereof) which have led to spiraling gas prices in an era of surplus supplies.

> Question 3. Please provide the Committee with your estimate of the amount by which gas supplies and gas reserves would increase or decrease, both over the short-run and over the long-run, if S. 615 is enacted.

Answer: The NARUC has not conducted an independent analysis of S. 615's likely impact on the level of gas reserves. However, we find plausible the arguments of many witnesses who testified before the Committee to the effect that decontrol of "old" gas prices, as proposed by S. 615, would inevitably reduce producers' incentives to seek out new reserves, particularly in the near-term.

> Question 4. Please provide the Committee with your estimate of the level of the gas cap if S. 615 were enacted today and the amount by which the cap would reduce average purchased gas costs.

Answer: The NARUC has not conducted an independent analysis of these aspects of S. 615.

> Question 5. Some witnesses appearing before the Committee have suggested that enactment of S. 615 would bring about chaos in the gas market. Please provide the Committee with your assessment of the prospect of that occurring.

Answer: The members of the NARUC generally believe that enactment of S. 615 would provide illusory consumer protection from unreasonable gas price increases, while exacerbating existing pricing problems (such as pipeline unaccountability) and creating new upward pressure on retail rates (by removal of wellhead price controls, among other things). We are inclined to agree that if this scheme became law, it would be unworkable as well as unwise.

Questions From Minority Members

> Question 1. Do you support any of the bills pending before the Committee on Energy and Natural Resources? If so, please indicate which one(s).

Answer: The NARUC strongly supports enactment of S. 823, which embodies the proposed legislation advocated by Chairman Murrell at the March 2 hearing of the Committee.

> Question 2. Please provide the Committee with specific statutory language for any amendments you would like to see adopted if the Committee were to use S. 615 as a mark-up vehicle for natural gas legislation.

Answer: In the event that S. 615 is used as a mark-up vehicle, the NARUC would advocate deletion of all substantive provisions of that bill and substitution therein of the provisions of S. 823.

Question 3. If the amendments you support are not adopted, and if you personally had to vote up or down on S. 615, would you support it or would you support a continuation of the existing law?

Answer: It is extremely difficult to predict what most NARUC members would decide, given a classic "Hobson's choice" of this sort. Our endorsement of S. 823 signifies State regulators' consensus that the NGPA should be revised so as to increase interstate pipelines' accountability for their gas purchasing practices, modify certain inequitable contractual arrangements between pipelines and producers, and eliminate certain Federal policies which unnecessarily thwart effective State regulation of retail gas rates. S. 615's provisions are largely inadequate to accomplish these objectives. Moreover, its proposed eventual total deregulation of gas wellhead prices is patently unacceptable to many NARUC members.

Assuming the dilemma posed by this question occurs, the NARUC would probably support the status quo--i.e., maintaining the NGPA as is--and would work toward building the consensus necessary to win enactment of legislation such as that embodied in S. 823.

Question 4. If controls are removed in the manner proposed by the Administrative, or in any other manner, will prices rise or fall? By how much? Why?

Answer: The NARUC has not conducted an independent analysis of S. 615's impact on gas prices.

Question 5. If prices fall, how much will production fall?

Answer: See answer to preceding question.

Question 6. Can you explain specifically and in detail why prices are not falling now?

Answer: In our view, there are several distinct barriers preventing gas prices at the burner tip from dropping in response to the surplus supply situation. First, as almost all parties to the natural gas policy debate will agree, inflexible, long-term supply contracts between producers and pipeline companies are serving to insulate the producing end of the industry from the economic impacts of overpricing gas. Take-or-pay, indefinite price escalator, and most-favored-nation clauses in such contracts provide producers an assured revenue stream, even when the wellhead prices these revenues are based upon exceed the actual market value of the purchased gas. This problem is exacerbated by the absence of renegotiation or "market-out" clauses in some producer-pipeline contracts.

The second major reason why gas prices remain excessive is that pipelines' purchasing decisions are in effect automatically approved by the FERC. Under the Commission's interpretation of Section 601 of the NGPA, "mere" imprudence on the pipeline's part, for example in buying high-cost gas supplies when lesser priced gas is also available, is not sufficient to deny the pipeline the right to pass through to its distribution company and industrial customers all of the purchased gas costs. And as long as the pipeline company's management knows it will not be held accountable for its gas purchase decisions, there exists no incentive to avoid the onerous contract terms noted above.

Fuel-switching by many industrial customers, especially as oil prices have gone down during the last 12 months, constitutes another important cause of high retail gas rates even as supplies are plentiful. The FERC's Office of Regulatory Analysis recently reported that in the last part of 1982, utility sales to industrial customers have fallen ten percent since 1981, reaching their lowest level in five years. Industrial load loss of this magnitude places a pronounced upward pressure on residential and commercial gas rates, since it increases the percentage of the utility's fixed costs which must be absorbed by these remaining customers.

There is an additional factor which the NARUC believes is contributing toward retail gas prices that are market-insensitive: the monopsony position of pipeline companies in the natural gas industry. Currently, many if not most gas distribution companies must rely upon only one pipeline for gas supplies. For this reason, State regulatory officials support serious consideration of structural alternatives which would enhance distribution companies' competitive options.

> Question 7. Giving a broad interpretation to the Natural Gas Act and the Natural Gas Policy Act, what authority might the FERC have to remove any barriers that exist at the present time to the fall in prices? Could its authority under Sec. 601(c) of the NGPA, concerning limitations on passthroughs in the event of "fraud, abuse, or similar grounds", be interpreted to provide such authority? Could its rulemaking authority under Sec. 501(a) of the NGPA be used to rectify the situation?

Answer: As the members of the Committee are undoubtedly well aware, a recent decision by an FERC administrative law judge in a PGA proceeding involving Columbia Gas Transmission Corp. points the way toward an interpretation of the Commission's authority under current law which is sufficient to deal with many aspects of the pipeline accountability problem noted above. In a December 30, 1982 decision issued by ALJ Michel Levant,[1] Columbia was denied the right to pass through certain of its purchased gas costs under NGPA Section 601(c), in part on the basis that the pipeline has engaged in an "abusive" practice of cutting back on low-cost gas supplies under take-or-pay contracts before reducing takes of higher cost supplies. Judge Levant also found that Columbia's practices in projecting future supply requirements and acquiring gas supplies were "unjust, unreasonable, unduly discriminatory and preferential" within the meaning of Section 5 of the Natural Gas Act (NGA), and he ordered the pipeline to modify such practices and to renegotiate inflexible contractual provisions to the maximum extent feasible.

Judge Levant's decision reflects the effort to harmonize the FERC's authority under NGPA Section 601(c) and NGA Sections 4 and 5 which FERC Commissioner J. David Hughes argued several months earlier the Commission has thus far failed to do. As Commissioner Hughes noted in his partial dissent from a Commission order in a Tennessee Gas Pipeline Co. PGA case,[2] under the NGA interstate pipelines are granted significant market power but are also vested with responsibility to consider the economic consequences for their captive customers of exercising this power. He also points out that "abuse" under Section 601(c) may be the disregard of a duty or the improper use of a right or privilege.

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[1] Docket Nos. TA81-1-21-000 and TA81-2-21-000.

[2] Docket Nos. TA82-2-9-000, RP81-54-000, RP82-12-001, and TA82-1-9-001. The FERC's Order Denying Rehearing was issued on October 1, 1982.

If the FERC affirms Judge Levant's decision in the Columbia case, the Commission will be breaking new ground in its own interpretation of its authority to stem unwarranted gas price increases. Even assuming such an outcome, however, the legislative remedies advocated by the NARUC would still be desirable. The importance of the FERC's role of policing pipeline purchasing practices dictates that it should be set forth as unambiguously as possible in Federal statutes. The experience of the last two years in particular shows that essential consumer protections should not be subject to weakening by Federal agency fiat.

Concerning another aspect of the Commission's powers to remove barriers to demand-sensitive pricing, the NARUC believes that the FERC currently possesses ample authority to require producer-pipeline contracts to be filed and made publicly available at the Commission. Section 315(c) of the NGPA permits the FERC to issue regulations requiring the filing of all such contracts and ancillary agreements. Moreover, Section 501(a) grants the Commission general rulemaking authority to issue regulations "as it may find necessary or appropriate to carry out its functions under this chapter" of the NGPA.

The NARUC has petitioned the FERC to implement producer-pipeline filing requirements, a request which the Commission has yet to act upon.[3] Without the opportunity to examine these contracts, State commissions as well as the general public are precluded from knowing how the major cost component in a retail gas rate case is computed.

As with the pipeline accountability issues discussed above, we believe that although current law enables the FERC to take the desired action and thereby subject pipeline transactions to greater public and regulatory scrutiny, the Commission's unwillingness to exercise its authority in this regard demonstrates the need for a legislative remedy that compels the FERC to act.

We appreciate this opportunity to provide a more detailed explanation of the NARUC's position with respect to pending natural gas legislation. If further information is required, please feel free to contact me.

Sincerely,

Rita A. B

Rita A. Barmann
Director of Congressional Relations

RAB/jwn

cc: Honorable Laura L. Murrell
Members, Senate Committee on
Energy and Natural Resources

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[3] The NARUC petition for rulemaking was filed in FERC Docket No. RM-82-20. The Commission referenced the NARUC petition, inter alia, in its April 28, 1982 Notice of Inquiry on Impact of the NGPA on Natural Gas Markets (Docket No. RM82-26).

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State Regulation of Natural
Gas Retail Rates

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In our view, not only do the results of incremental pricing fall far short of these admirable goals, but they confirm the rationale behind NARUC's initial position against enactment of Title II: that Federal intrusion into retail ratemaking matters is impractical at best, and at worst, significantly thwarts effective State regulation of gas utility rates and service. Despite incremental pricing, residential and commercial gas consumers have not been spared the burden of rapidly rising gas bills, even in the face of serious conservation efforts. Moreover, fuel-switching by industrial users has become a problem of major proportions in most parts of the country.

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In sum, the members of the NARUC firmly believe that experience has shown incremental pricing to be a manifestly unwise Federal policy that interferes with the States' ability to ensure least-cost gas service to all consumers. We commend you, Senator Ford, for your leadership in opposing incremental pricing, and we look forward to working with you toward repeal of the NGPA's Title II.

Sincerely,

Rita A. Barmann
Director of Congressional Relations

RAB/jwn

cc: Hon. Laura L. Murrell
Members, Senate Committee on
Energy and Natural Resources

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Although some NARUC members may well have a definitive response to these questions, our Association as a whole has taken no position on either of them.

We appreciate your interest in the NARUC's perspectives on natural gas policy. If I can be of any additional assistance to you or your staff concerning such matters, please feel free to contact me.

Sincerely,

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Director of Congressional Relations

cc: Hon. Laura L. Murrell
Members, Senate Committee on
Energy and Natural Resources

LEONARD S. COLEMAN, JR.
COMMISSIONER

STATE OF NEW JERSEY
DEPARTMENT OF ENERGY

April 1, 1983

Mr. Howard Useem
Committee Staff
Senate Energy and Natural
Resources Committee
United States Senate
Dirksen Senate Office Building
Washington, D.C. 20510

Dear Mr. Useem:

I am attaching the State of New Jersey's response to questions formulated by your committee and transmitted to us in your March 16 letter. I believe these answers adequately address the questions posed and expand upon the testimony I presented before the Committee on March 12.

I appreciate having the opportunity to present New Jersey's position to you. My Department stands ready to assist the members of this committee and its staff in working towards a fair and timely solution to the natural gas decontrol issue.

Yours sincerely,

Leonard S. Coleman, Jr.
Commissioner

LSC/jl

Attachment

Majority # 1 and Minority # 1 and # 2

We do not endorse any single bill pending before the Senate Committee on Energy and Natural Resources. We believe that these bills, although well-intended, do not employ the appropriate strategies to resolve the inequities and concerns of all involved in this complex area. S-615, as a major overhaul of NGPA, attempts to do too much, while the other bills represent piecemeal approaches. There are provisions contained in the pending bills which we endorse. By adopting these provisions we feel the process of decontrol as structured under NGPA will work.

We do not support a 2 year extension of the existing NGPA timetable and/or a price freeze as proposed in various bills (S-60, S-291, S-293). We view these bills as being "quick-fix" solutions which do not focus on addressing the major problem facing the natural gas industry today, i.e. contract provisions. These bills attempt to address and/or remedy causes for today's gas price increases but fall short of attaining the desired end-result due to their narrow focus. We are in favor of a more comprehensive approach. We believe that by implementing the recommendations in our testimony as well as the recommendations specified below (which include certain provisions requested in several of the pending bills) that the NGPA framework already in place will work more effectively and afford a smoother transition to gas decontrol than if S-615 or these other bills were adopted.

The following are specific recommendations to amend NGPA:

* Both producers and pipeline companies should have some defense against unforeseen market swings, essentially a market out provision in all new contracts.

* Repeal the Powerplant and Industrial Fuel Use Act and incremental pricing provisions of the NGPA.

* Void indefinite price escalator and most favored nation clauses.

* Allow a three year moratorium on take-or-pay contracts limiting them to a maximum payment of 50 - 70% of the gas price with a make-up of 5 years, without penalty.

* FERC must develop a rate design mechanism to ensure pipeline gas purchases are sensitive to end-use market conditions.

* Expand NGPA fraud and abuse standards to include an imprudence standard. Allow the passthrough of only "prudently incurred" gas costs (see response to Minority Question # 7).

* Order FERC to require the filing of natural gas contracts, together with all ancillary agreements and make the material terms of such contracts publicly available. FERC presently has this power under NGPA but has not utilized it.

Majority # 2, 3, 4

In order to respond effectively to Majority questions # 2, 3, and 4, which are premised on the enactment of S-615, we would need more detailed information and responses to the many uncertainties which S-615 raises (see responses to Minority Question # 3). Clearly, the wide-range of strategies and positions regarding gas pricing, supplies and reserves presented before your Committee from March 9 -12 reinforces the fact that the effects of many provisions of S-615 are not known. More importantly, these responses indicate there is no clear-cut consensus as to the effect S-615 will have on gas prices, supplies and reserves and that any conclusions or projections on S-615 are based on incomplete information.

We would however, disagree with Secretary Hodel's statement in his testimony before your Committee that he fully expects the price of natural gas to decline some 10 to 30 cents per thousand cubic feet (Mcf) in the first year if the proposal is enacted, with a gas cap of approximately $3.00 per Mcf. How would a nearly 20% increase in the average well-head price ($2.56 as of November 1982) result in lower prices for the consumer?

We cannot estimate the amount by which gas prices would increase or decrease over the short and long-term if S-615 is enacted. The short-term analysis would require an evaluation of all natural gas contracts entered into over the past six months. Because FERC has not collected and made readily available this information, this analysis is not possible.

However, we have provided your Committee with copies of our study entitled "Natural Gas: Issues and Options" in which the New Jersey Department of Energy has estimated the impact of various decontrol options upon New Jersey customers. These results are briefly summarized below.

Under the NGPA, NJDOE estimates that:

The real cost of natural gas will increase at an average rate of 8.5% per year from 1983 to 1990[1]. A typical residential heating customer (1,400 therms per year for space heating, water heating, cooking and clothes drying) who paid $647 in 1980, will pay an average of $1,492 (in 1980 dollars) annually for this period.

There would be little difference in this average annual cost if decontrol were accelerated to 1983 or if controls were extended to 1987 but a significant difference if total decontrol (including "old" gas)were instituted in 1983. For the period of 1983 to 1990, NJDOE estimates that the real annual average cost for this typical residential heating customer will be:

- $1,535 (in 1980 dollars), or approximately three (3) percent higher with accelerated decontrol than under NGPA
- $1,478 (in 1980 dollars), or approximately one (1) percent lower with extended controls, and
- $1,615 (in 1980 dollars), or approximately eight (8) percent higher with total decontrol.

Under S-615, "old gas" would be deregulated. As we have indicated in our testimony, decontrolling "old gas" will result in the transfer of money from consuming states to producing states, since it only increases the value of gas supplies already in production. Producers would get the same price for "old gas" as they would for newly discovered gas, and because production costs are less for "old gas", producers would have little incentive to explore for new reserves.

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[1] This estimate is based upon the assumption that natural gas prices will reach parity with residual fuel oil.

Majority # 5

We concur with the belief that natural gas markets would be thrown into a greater state of disorder than under current regulations should S-615 be enacted. There are several reasons for this opinion.

First, S-615 depends primarily on the renegotiation of contracts. We believe that the renegotiation of gas purchase contracts between the date of enactment of S-615 and January 1, 1985 will be minimal. In fact, testimony by pipeline companies before the House Subcommittee on Fossil and Synthetic Fuels in February, 1983 indicated that they were pessimistic about the potential for renegotiation efforts and that there would be limited chances for voluntary renegotiation of contracts to bring quick and significant relief to ratepayers.

There is little incentive for producers to negotiate prices downward on any contract. They would be given the right to abrogate any contract they deemed "uneconomical" as of January 1, 1985, and pipelines would be required to transport their gas to any other purchaser. Thus, producers of old gas have little or no incentive to renegotiate.

Pipeline companies, on the other hand, would be encouraged to renegotiate existing contracts for low priced gas to ensure a reliable supply of gas after January 1, 1985. In essence, the onus is on pipeline companies either to renegotiate their low-cost contracts with producers or to face abrogation of contracts for large portions of their supplies beginning January 1, 1985.

Second, the common carriage provisions of the Administration's bill are administratively complex and would require excessive FERC staff time. FERC would be forced to make pipeline capacity decisions for transmission companies as hundreds of end-users and distribution companies requested carriage of gas.

Third, FERC would have the additional administrative burden of calculating the gas caps; reviewing the hundreds of PGA and ratemaking requests submitted to it; and reviewing construction and abandonment applications.

In summary, we have concluded that it would be virtually impossible for FERC to respond in a timely and cost-effective manner to the numerous demands that are presently placed on it and would be required of it under S-615. This increased workload would come at a time when FERC's appropriations are continuing to be cut by the Reagan Administration (FY 1984 appropriations are 14% less than 1983). FERC Chairman Butler made this point before the House Appropriations Subcommittee stating that:

> "The Commission simply cannot sustain a cut of this magnitude without serious consequences to its regulatory mission... Without additional funding in the current fiscal year, our operations will have to be significantly curtailed. It will be nearly impossible to avoid hiring freezes, personnel furloughs, and the resulting serious delay in processing critical natural gas pipeline, hydro licensing, and electric rate cases."

(The Monitor, March 7, 1983 p. 11)

Minority # 3

If required to choose between S-615 and a continuation of the existing law, we would select the latter. While the NGPA has not entirely achieved its desired results, it is a system which has been in place for four years, has effects which can be measured and has established a framework for decontrol which is assessable. S-615, on the other hand, has many uncertainties as evidenced by the wide range of comments in testimony before your Committee. Questions have been raised as to:

1) What will the gas price cap be and how will it affect the ability of interstates to acquire and market natural gas?

2) What will be the effect of S-615 on exploration?

3) How will FERC adjust its policies with respect to Purchased Gas Adjustments?

4) Will FERC's staff be able to accommodate any additional workload resulting from contract renegotiations, transportation determinations, gas price cap calculations, large-scale contract abrogations in 1985, etc.

5) What will be the effect of forced contract carriage on the natural gas market, particularly the interstates and local distribution companies?

Thus, while a continuation of the existing law will cause some market disorder in 1985 we feel that the cost to natural gas consumers will be less than it would be under S-615. Further, we believe that the most prudent and responsible action would be to make the adjustments to the NGPA to correct its flaws rather than to jettison the existing framework and replace it with S-615.

Minority # 4

We see prices rising under any decontrol plan that includes the removal of such controls on "old gas". Total decontrol, according to

NJDOE estimates, will result in real annual average cost (in 1980 dollars) for the typical residential customer in the period 1983-1990 approximately 8% higher than under a continuation of the NGPA. There is no doubt that "old gas" contracts will be renegotiated at significantly higher prices than under price controls. Even with a significant drop in prices of those "incentive" gas categories , we project that the average well-head cost will rise as a result.

Secretary Hodel stated in his testimony before your Committee that the price cap would be approximately $3.00 per Mcf, if S-615 were enacted today. Since the average well-head price of gas as reported by the USDOE Energy Information Administration for November 1982 (latest available) is $2.56, how will a $3.00 gas cap reduce prices? We see the "price cap" working in a manner similar to the ceiling price set under NGPA, that is, as a floor price.

With regard to the Administration's proposal, we do not see FERC acting effectively in minimizing Purchased Gas Adjustments (PGA) price increases. It has failed in this regard under present legislation (see also Response to Minority Question # 7).

Under S-615, gas price increases above inflation from the date of enactment of S-615 through December 31, 1985 may not be passed through automatically by pipelines. However, a pipeline company may file an application before FERC to increase its rates to reflect any purchased gas cost incurred above the rate of inflation. FERC can, after holding a full public proceeding, issue an order that grants a pipeline company's application to recover such costs, in whole or in part, with such modifications and upon such terms and conditions as FERC may find necessary and appropriate.

The Administration bill does not define or even discuss the "appropriate standards" by which FERC would review the PGA's if they exceed inflation levels. Based upon FERC's track record with PGA proceedings, why should we not feel that all such requests would be granted? Additionally, we question how all the PGA requests filed on or after January 1, 1986 will be handled.

Minority # 5

As stated in our response to question # 4 we do not feel gas prices will fall. Therefore, the question is moot.

Minority # 6

There are a number of reasons for prices not falling in an oversupplied market. It has been clearly stated by many sources that the price signals are not filtering back from the end-user to the producer. Because the structure of the market actually involves three discrete markets (producer/pipeline, pipeline/distributor and distributor/end-user), problems in the distribution/end-user market are not felt by the producer.

Part of this problem revolves around contracts that were entered into during a time of severe supply constraint. These contracts contain clauses that are inflexible and devoid of any provision for a downward adjustment in price or obligations to reflect sensitivity to market conditions. High take-or-pay contracts have resulted in high-cost gas being taken while low-cost gas is shut-in. This problem has in part been created by the economic stagnation of the last two years. The inflexible contracts have resulted in this phenomena feeding on itself and causing even higher costs. By this I mean that as demand declines, prices rise. As higher prices are passed on, demand will fall, thereby causing another cycle of price increases that are inherent in the system because of the inflexible contracts.

Takes in contracts must be reduced, at a minimum, to 70%. It has been stated by Chairman Butler of FERC that 50 to 70% would be a reasonable range for takes. Additionally, make up periods for takes should be up to 5 years as that is the period which FERC allows prepayments to be carried in its rate base.

FERC has also been responsible for prices being raised in the face of declining demand. A recent ruling by FERC (January 24, 1983), regarding the implementation of Section 110 of the NGPA, passes along production related costs incurred by producers. These costs to the purchasers of gas are ultimately paid for by the consumer and could raise prices by as much as $0.65 per MMBtu.

Historically, FERC's interpretation of Section 601(c), Guaranteed Passthrough with regard to Purchased Gas Adjustments for interstate pipelines, has been so narrowly defined that it essentially abrogated its function. The Commission has followed a policy that essentially limits consideration of the "fraud, abuse or similar grounds" standard to consideration of whether amounts paid for gas were excessive as a result of misrepresentation.

What is required, as a result, is the modification of Section 601(c) to include an imprudence standard. This could apply to pipeline gas purchasing practices where the price of gas paid by the pipelines is well above prices that would make the gas competitive to alternative fuels.

Minority # 7

FERC's authority under the NGPA regarding natural gas purchase contracts is limited to contracts for gas which was committed or dedicated to interstate commerce on or before November 8, 1978. Based upon this, it has been held in one court case that once gas is certified as Section 102(c), 103, or 107 gas (i.e. "new" gas), "FERC loses its NGA jurisdiction over contract regulation and interpretation" (Pennzoil Company v. FERC 645 F2d at 382). Thus, FERC's only recourse to deal with "new"gas contracts is through the regulation of pipeline rates and purchased gas adjustments. Essentially, pipeline companies are allowed a guaranteed passthrough of the cost of purchased gas onto its customers under Section 601(c) of the NGPA. This automatic passthrough is limited to the extent that FERC determines that the amount paid was excessive due to "fraud, abuse, or similar grounds."

The problem is that FERC historically has interpreted the "fraud, abuse, or similar grounds" standard under Section 601(c) of the NGPA to be limited to misrepresentation, and that even if imprudence has been established (as to the pipeline companies gas purchasing practices), it would not meet the Section 601(c) standard.

We believe that FERC does have the authority under the NGPA (in the PGA proceeding) to prevent the passthrough of gas costs incurred from purchasing increased quantities of high-cost gas even though the prices for the gas paid by the pipelines were well above the prices that would make gas competitive with alternative fuels in the marketplace. We believe FERC has interpreted this standard too narrowly, thereby precluding it from exercising this standard to cover imprudent gas purchasing practices by pipeline companies' management. Therefore, to state and define more clearly FERC's role under Section 601(c) of the NGPA, we would endorse the adoption of the following language included in the S-60 bill (Mrs. Kassebaum):

> Subsection (c)(2) of section 601 of title VI of the Natural Gas Policy Act of 1978 is amended (1) by inserting "imprudence," immediately after "abuse,' and (2) by adding at the end of subsection (c)(2) the following: "Whenever the Commission determines, upon its own motion or the petition of any party, that --
>
> "(i)(I) Any amount paid with respect to any purchase of natural gas is excessive due to fraud, abuse, imprudence, or similar grounds under this paragraph, or
>
> "(II) Any rate or charge collected by any natural gas company in connection with any transportation or sale of natural gas

> is unreasonable or unjust under section 4 or 5 of the Natural Gas Act; and
>
> "(ii) such rate, charge, or amount paid is the result of any contract between a pipeline company and a producer which contains a provision which the Commission determines prevents the pipeline company from responding to the demands of customers or other market forces by requiring the purchaser to pay for a minimum daily contract quantity of gas whether or not such gas is taken, The Commission shall have the authority to take such appropriate action as it may deem necessary including the rescission, annulment, or modification of such contract provisions."

We do not believe that FERC's ratemaking authority under Section501(a) can be used to rectify the contracts problem. However, FERC has exercised the authority under this section in ruling on production-related costs (Section 110(a)(2)). This action has contributed to gas price increases. FERC can rescind Order 94a and reduce natural gas prices by as much as $0.65 per MMBtu.

Finally, FERC's policy of administrative decontrol of higher gas through NGPA category redefinition and expansion must be abandoned.

QUESTIONS FROM VARIOUS REPUBLICAN MEMBERS OF THE COMMITTEE

1. Please provide the Committee with the specific legislative language necessary to implement those changes to the Administration's bill, S. 615, that you identified in your oral and written testimony as being necessary. Also please provide the Committee a justification for each of your recommended changes.

2. Please provide the Committee with your estimate of the amount by which gas prices would increase or decrease, both over the short-run and over the long-run if S. 615 is enacted.

3. Please provide the Committee with your estimate of the amount by which gas supplies and gas reserves would increase or decrease, both over the short-run and over the long-run, if S. 615 is enacted.

4. Please provide the Committee with your estimate of the level of the gas cap if S. 615 were enacted today and the amount by which the cap would reduce average purchased gas costs.

5. Some witnesses appearing before the Committee have suggested that enactment of S. 615 would bring about chaos in the gas market. Please provide the Committee with your assessment of the prospect of that occurring.

MINORITY MEMBERS' ADDITIONAL QUESTIONS FOR

NATURAL GAS HEARING RECORD

WITNESSES APPEARING MARCH 12, 1983

QUESTIONS FOR PANEL TWO

1. Do you support any of the bills pending before the Committee on Energy and Natural Resources? If so, please indicate which one(s).

2. Please provide the Committee with specific statutory language for any amendments you would like to see adopted if the Committee were to use S. 615 as a mark-up vehicle for natural gas legislation.

3. If the amendments you support are not adopted, and if you personally had to vote up or down on S. 615, would you support it or would you support a continuation of the existing law?

4. If controls are removed in the manner proposed by the Administration, or in any other manner, will prices rise or fall? By how much? Why?

5. If prices fall, how much will production fall?

6. Can you explain specifically and in detail why prices are not falling now?

7. Giving a broad interpretation to the Natural Gas Act and the Natural Gas Policy Act, what authority might the FERC have to remove any barriers that exist at the present time to the fall in prices? Could its authority under Sec. 601(c) of the NGPA, concerning limitations on passthroughs in the event of "fraud, abuse, or similar grounds", be interpreted to provide such authority? Could its rulemaking authority under Sec. 501(a) of the NGPA be used to rectify the situation?

Response of Mr. J. H. Croom
President of The Columbia Gas System, Inc.
to Questions from Minority Members of the Committee

1. Do you support any of the bills pending before the Committee on Energy and Natural Resources? If so, please indicate which one(s).

Answer: Columbia does not support in their entirety either of the two bills presently pending before the Senate Committee on Energy and Natural Resources, i.e., S.615 and S.689.

Columbia's concerns with respect to S.615 were detailed at some length in my written and oral testimony. The Administration assumes that under S.615, high gas prices will go down and lower gas prices will go up so that market-clearing balances will be achieved. In Columbia's opinion, however, the bill does not put enough pressure on producers to renegotiate their high-cost contracts to lower prices, while at the same time making it easy for producers to get higher prices for their low cost gas as a result of the decontrol of old gas and the imposition of a broad market out which extends to contracts for old gas.

Columbia does favor many of the provisions of S.689, introduced by Senator Heinz, since these provisions focus directly on and provide immediate relief from the principal problems facing consumers in the gas industry--the intractable provisions in producer contracts which do not permit the price of gas to respond to market conditions. Columbia cannot support, however, the Rate Increase Disincentive provided for in Section 204 of S.689. Contrary to the assumption underlying this proposal, pipelines do not file for unnecessary rate increases, particularly in view of the need to keep prices down to maintain their markets. Moreover, it makes no sense for pipelines to use such rate increases as a financing vehicle, since they can already borrow short-term funds at rates up to two points below prime--the rate of interest which the FERC presently requires pipelines to pay on refunds. Thus, the proposed disincentive is unnecessary and would instead act to unduly penalize pipelines who make rate increase filings in good faith.

2. Please provide the Committee with specific statutory language for any amendments you would like to see adopted if the Committee were to use S. 615 as a mark-up vehicle for natural gas legislation.

Answer: Columbia's proposed amendments to S.615 are set forth in Attachment A. The major changes reflected by these amendments and the reasons for these changes are as follows:

Limitation on Passthrough of Purchased Gas Costs

Title I of S.615 which provides for a limitation on the passthrough of purchased gas costs in excess of inflation has been deleted because of its overly restrictive provisions. The approach totally ignores the fact that pipelines usually are contractually obligated with respect to Section 102 and Section 108 gas to add a 4% annual increase to the price in accordance with the provisions of the NGPA. To the extent Section 102 and Section 108 volumes are purchased, the prices in subsequent pipeline PGAs will be 4% higher than inflation. Furthermore, because of the depletion of older, cheaper gas, the pipelines' mix of gas is constantly shifting toward newer, costlier supplies making it difficult to keep gas purchase costs within the rates of inflation. The passthrough limitation also ignores the plight of pipelines purchasing gas from other pipelines. Pipeline rates reflect costs other than purchased gas costs which could result in an increase in rates greater than inflation and over which the purchasing pipeline has no control. The special procedures outlined in S.615 would also result in the substantial delay of the recovery of purchased gas costs, particularly when contested proceedings are involved, thus resulting in severe cash flow problems for pipelines. There is no provision for the subsequent recovery of the gas purchased costs which are incurred by pipelines, but which they are prohibited from recovering while the Commission reviews its PGA filings. Finally, the provision is unduly discriminatory in that it does not also apply to intrastate pipelines, thus giving them an advantage in acquiring new gas supplies.

As an alternative to S.615's Title I, Columbia recommends the insertion of a provision which imposes a prudence standard on pipelines with respect to their gas purchased costs. This provision should more than adequately ensure that pipelines are acting in the best interests of their customers and does not have all of the serious drawbacks associated with the Administration's proposal.

Price Deregulation

Title II of S.615 has been modified to keep gas which is not scheduled for price deregulation permanently regulated. Columbia opposes the decontrol of old gas either on January 1, 1985, or upon the renegotiation of contracts for such gas. The automatic decontrol in 1986 will result in an unnecessary increase in prices to consumers without any offsetting benefits. Moreover, with S.615's proposed market out for old gas, producers will have no incentive to renegotiate their contracts for old gas except on their own terms. Under such circumstances, Columbia can see no way by which there would be a decline in the price for high cost gas sufficient enough to offset the potential increase in the price for old gas if decontrol is permitted upon renegotiation. Thus, while Columbia favors the eventual decontrol of all gas, the best means of achieving this is through the gradual depletion of regulated, old gas.

Take-or-Pay

In Section 302 of S.615, Columbia has changed the take-or-pay limit from 70% of deliverability to 50% of deliverability. Based upon Columbia's own experience, this lower percentage will provide more meaningful flexibility for pipelines, yet recognize minimum cash flow needs of the producer.

Columbia has also modified Section 302 to clarify that when a purchaser exercises its right to reduce the take-or-pay requirement, the seller may resell the volumes not taken only during the period that the statutory reduction in the take-or-pay requirement is in effect. Without such a clarification, the provision would prove to be ineffective because pipelines would be hesitant to exercise the statutory take-or-pay limitation for fear of permanently losing substantial reserves necessary to serve the future requirements of their customers.

With respect to the exception to the take-or-pay limitation to provide relief from drainage situations, Columbia has proposed the addition of a provision which would require a person seeking to increase the take-or-pay limitation as a result of drainage to first use such self-help measures as are available to it, including the filing for the unitization of reservoirs. Producers should not be permitted to escape the statutory take-or-pay requirements as a result of situations over which they have control.

Market Out

The market-out provision S.615 has been modified to permit market outs only for that gas which is deregulated or which is scheduled under the NGPA for price deregulation. A market out for old gas would allow producers to take away from pipelines substantial reserves of low cost, old gas and to resell it on the open market to the highest bidder. Consumers would be hurt not only by substantial and unnecessary price increases, but also by the loss of substantial reserves behind the pipeline systems serving them. Moreover, because of the immediate need for price relief with respect to high-cost gas, Columbia has modified the Administration's proposal to make the market out for gas deregulated or to be deregulated in the future effective for one year upon the enactment of the legislation.

Columbia has also added language to the market-out provision to permit pipelines the right of first refusal with respect to any gas for which a market out has been exercised and a bona fide offer has been received by the seller from a third party. Furthermore, Columbia has added a provision providing that for purposes of this section, any contract establishing two or more categories or subcategories of natural gas for purposes of pricing the natural gas delivered under the contract is to be treated as separate contracts for each category or subcategory. This provision is similar to that already provided for in S.615 with respect to the statutory take-or-pay limitation and is essential in order to make the market-out provision work as intended.

Indefinite Price Escalators

Columbia has added a new Section 305 to S.615 which declares indefinite price escalator clauses to be against public policy and unenforceable. For purposes of this section, an indefinite price escalator clause is defined as any contract provision which provides for the establishment or adjustment of the price for natural gas delivered under the contract by reference to prices for natural gas, crude oil, refined petroleum products or for any other commodity. These inflexible third-party favored nation clauses have, in large part, been responsible for the high prices which exist today. These clauses should not be allowed to continue to operate with respect to presently deregulated gas and gas which will eventually become deregulated.

Access to Gas Supply

Finally, there are other sections of S.615 for which Columbia has not provided any specific amendatory language, but which raise critical and complex issues which require careful attention. This is particularly true with respect to the provisions providing for greater access to gas supplies by intrastate pipelines and the related provision providing the FERC with the authority to order interstate pipelines to transport gas on a contract basis. Under these provisions, an intrastate pipeline can purchase gas in another state, have it transported by an interstate pipeline by order of the FERC, sell it for resale in interstate commerce, and never become subject to the FERC's jurisdiction under the Natural Gas Act with all of the associated regulatory responsibilities and obligations. Under such circumstances, intrastate pipelines will be able to outbid interstate pipelines for new gas supplies, leading eventually to the return of the dual markets which resulted in the severe gas shortages of the 1970s.

3. If the amendments you support are not adopted, and if you personally had to vote up or down on S.615, would you support it or would you support a continuation of the existing law?

Answer: Columbia would not support S.615 on an up or down vote. Columbia cannot support a continuation of the existing law either. Legislation, as detailed in my written testimony and in the amendments described in my response to Question 2, must be enacted if natural gas price increases are to be abated.

4. If controls are removed in the manner proposed by the Administration, or in any other manner, will prices rise or fall? By how much? Why?

Answer: It is impossible to quantify what the price of gas will be in 1985 and beyond under S.615. S.615 does not provide an orderly transition to a deregulated market. Rather, it provides for a chaotic confrontation between producers and pipelines in which prices are to be redetermined and in which supplies presently committed may be acquired by others.

Under S.615 a pipeline would have no fixed supply on which to build. All existing supplies can be marketed out. In order to supply its market, the pipeline in effect would be under extreme duress to meet the two-fold standards of prudence in pricing and prudence in obtaining adequate gas supply. It would have no way of knowing whether other potential purchasers would bid or how much of its committed supply will be lost.

With the probability of the vast majority of producer contracts being marketed out -- the low priced ones by the producers and the high priced ones by the pipelines -- it would follow that almost all gas would be up for renegotiation at about the same time. Columbia would have to renegotiate up to 7,100 contracts for gas presently dedicated to its pipeline.

If Columbia could not successfully renegotiate a large percentage of the gas supply presently dedicated to its system, it could be subject to claims that it has not acted prudently. If it paid a sufficient price to assure a high percentage of the recommitments it could be charged with paying imprudent prices.

For these reasons, S.615 will not provide the result which Congress desires and the public deserves: ample supplies of gas at reasonable prices.

5. If prices fall, how much will production fall?

Answer: It is Columbia's opinion that it will be most difficult to determine a price-production relationship until the existing excess deliverability problems are resolved. The majority of the natural gas pipelines in the U.S. are currently experiencing extreme difficulty in avoiding take-or-pay payments and/or managing the take-or-pay payments which they have already incurred or will be incurring in the foreseeable future. The impact of the excess deliverability problem is what has really precipitated the drastic decline in drilling activities in the natural gas production areas of the U.S. The principal causes for excess deliverabilities are first of all, the current recession and, second, the worldwide glut of crude oil. The prices which are being offered for gas at the wellhead under new contracts have been trending downward, at least in the case of Columbia Gas Transmission Company offerings, since 1981. For example, Columbia was paying the maximum lawful price (MLP) for tight sands and shale gas in the Appalachian area during 1982, as well as the MLP for Sections 102, 103 and 108 gas. In 1983, it is offering $4.00 for tight sands and/or shale gas in the Appalachian area and the MLP, without escalations, as of January 1, 1983 for Sections 102, 103 and 103 categories. Lower prices coupled with diminished demand for new reserves have resulted in greatly decreased drilling activity as witnessed by the number of rigs presently running in the U.S. compared to as late as a year ago. Columbia believes that once order is restored to the marketplace, drilling activity should increase resulting in reserves adequate to supply the available market.

6. Can you explain specifically and in detail why prices are not falling now?

Answer: Natural gas prices are not responding to market conditions primarily for three reasons.

In the first place, there has been the upward pressure exerted on prices by such inflexible contract provisions as third-party favored nation clauses and high take-or-pay requirements. These clauses were negotiated, for the most part, in a regulated environment where the price of gas had been held at an artifically low level and during a time of shortage, *i.e.*, in a seller's market. They no longer reflect the reality of the market place and insulate producers from the impact of changing market conditions. Another reason is the NGPA itself which provides only for upward adjustments in maximum lawful prices and provides no mechanism by which such prices, other than possibly Section 107(c)(5) incentive prices, can be decreased by order of the FERC or otherwise to reflect current market conditions. Moreover, the NGPA has severely restricted the FERC's ability to regulate producer contracts. Thus, the FERC has been powerless, for the most part, to remedy the contractual provisions and the producer practices thereunder which are resulting in ever-increasing gas prices at a time of declining demand.

Finally, the gradual depletion of old, cheaper gas and its replacement with more expensive, new gas acts to put constant upward pressure on the average price of gas--no matter what the demand.

7. Giving a broad interpretation to the Natural Gas Act and the Natural Gas Policy Act, what authority might the FERC have to remove any barriers that exist at the present time to the fall in prices? Could its authority under Sec. 601(c) of the NGPA, concerning limitations on passthroughs in the event of "fraud, abuse, or similar grounds," be interpreted to provide such authority? Could its rulemaking authority under Sec. 501(a) of the NGPA be used to rectify the situation?

Answer: Even given the broadest interpretation possible to the Natural Gas Act and the Natural Gas Policy Act, the FERC has very little authority to remove the barriers which presently exist to a decrease in gas prices under existing contracts. Virtually all of the contracts which are causing the current problems are explicitly removed from the FERC's regulatory jurisdiction by NGPA Section 601(a). As a result of this provision and court decisions interpreting it, the FERC has no jurisdiction whatever over these sales of gas.

As for the "fraud, abuse or similar grounds" standard of Section 601(c) of the NGPA, Columbia believes and the FERC has recognized in its Statement of Policy that the standard is not broad enough to permit its application in such a manner as to resolve the primary cause of higher gas prices, i.e., favored nation and take-or-pay clauses. In any event, the problem involves producer contracts, and that problem can be dealt with most efficiently by legislation aimed directly at those contracts--not through the use of Section 601(c) in such a manner that it puts pipelines in the untenable position of not being able to recover their costs as a result of circumstances beyond their control, while at the same time providing no incentive whatsoever to producers to renegotiate their existing contracts.

NGPA Section 501 gives the FERC the authority to "prescribe, issue, amend, and rescind such rules and orders as it may find necessary or appropriate to carry out its functions under this act." The FERC, however, is not charged under NGPA, as it was under the Natural Gas Act, with the duty to regulate wellhead sale prices. Congress decided what prices were to be charged and where prices would be unlimited and stripped the FERC of its authority to control the latter. Given the explicit limitations on the FERC's authority under NGPA Section 501(a), the FERC simply is not empowered to issue the necessary rules to rectify the current situation. Moreover, any attempt by the FERC to exercise such authority would be hopelessly hamstrung by protracted litigation involving both the promulgation of the necessary rules as well as appeals to the courts therefrom. Thus, both as a legal and practical matter, the FERC cannot under NGPA Section 501(a) deal with the current circumstances.

Response of Mr. J. H. Croom
President of The Columbia Gas System, Inc.
to Questions from Various Republican
Members of the Committee

1. Please provide the Committee with the specific language necessary to implement those changes to the Administration's bill, S.615, that you identified in your oral and written testimony as being necessary. Also please provide the Committee a justification for each of your recommended changes.

Answer: Columbia's proposed amendments to S.615 are set forth in Attachment A. The major changes reflected by these amendments and the reasons for these changes are as follows:

Limitation on Passthrough of Purchased Gas Costs

Title I of S.615 which provides for a limitation on the passthrough of purchased gas costs in excess of inflation has been deleted because of its overly restrictive provisions. The approach totally ignores the fact that pipelines usually are contractually obligated with respect to Section 102 and Section 108 gas to add a 4% annual increase to the price in accordance with the provisions of the NGPA. To the extent Section 102 and Section 108 volumes are purchased, the prices in subsequent pipeline PGAs will be 4% higher than inflation. Furthermore, because of the depletion of older, cheaper gas, the pipelines' mix of gas is constantly shifting toward newer, costlier supplies making it difficult to keep gas purchase costs within the rates of inflation. The passthrough limitation also ignores the plight of pipelines purchasing gas from other pipelines. Pipeline rates reflect costs other than purchased gas costs which could result in an increase in rates greater than inflation and over which the purchasing pipeline has no control. The special procedures outlined in S.615 would also result in the substantial delay of the recovery of purchased gas costs, particularly when contested proceedings are involved, thus resulting in severe cash flow problems for pipelines. There is no provision for the subsequent recovery of the gas purchased costs which are incurred by pipelines, but which they are prohibited from recovering while the Commission reviews its PGA filings. Finally, the provision is unduly discriminatory in that it does not also apply to intrastate pipelines, thus giving them an advantage in acquiring new gas supplies.

As an alternative to S.615's Title I, Columbia recommends the insertion of a provision which imposes a prudence standard on pipelines with respect to their prospective gas purchased costs. This provision should more than adequately ensure that pipelines are acting in the best interests of their customers and does not have all of the serious drawbacks associated with the Administration's proposal.

Price Deregulation

Title II of S.615 has been modified to keep gas which is not scheduled for price deregulation permanently regulated. Columbia opposes the decontrol of old gas either on January 1, 1985, or upon the renegotiation of contracts for such gas. The automatic decontrol in 1986 will result in an unnecessary increase in prices to consumers without any offsetting benefits. Moreover, with S.615's proposed market out for old gas, producers will have no incentive to renegotiate their contracts for old gas except on their own terms. Under such circumstances, Columbia can see no way by which there would be a decline in the price for high cost gas sufficient enough to offset the potential increase in the price for old gas if decontrol is permitted upon renegotiation. Thus, while Columbia favors the eventual decontrol of all gas, the best means of achieving this is through the gradual depletion of regulated, old gas.

Take-or-Pay

In Section 302 of S.615, Columbia has changed the take-or-pay limit from 70% of deliverability to 50% of deliverability. Based upon Columbia's own experience, this lower percentage will provide more meaningful flexibility for pipelines, yet recognize minimum cash flow needs of the producer.

Columbia has also modified Section 302 to clarify that when a purchaser exercises its right to reduce the take-or-pay requirement, the seller may resell the volumes not taken only during the period that the statutory reduction in the take-or-pay requirement is in effect. Without such a clarification, the provision would prove to be ineffective because pipelines would be hesitant to exercise the statutory take-or-pay limitation for fear of permanently losing substantial reserves necessary to serve the future requirements of their customers.

With respect to the exception to the take-or-pay limitation to provide relief from drainage situations, Columbia has proposed the addition of a provision which would require a person seeking to increase the take-or-pay limitation as a result of drainage to first use such self-help measures as are available to it, including the filing for the unitization of reservoirs. Producers should not be permitted to escape the statutory take-or-pay requirements as a result of situations over which they have control.

Market Out

The market-out provision S.615 has been modified to permit market outs only for that gas which is deregulated or which is scheduled under the NGPA for price deregulation. A market out for old gas would allow producers to take away from pipelines substantial reserves of low cost, old gas and to resell it on the open market to the highest bidder. Consumers would be hurt not only by substantial and unnecessary price increases, but also by the loss of substantial reserves behind the pipeline systems serving them. Moreover, because of the immediate need for price relief with respect to high-cost gas, Columbia has modified the Administration's proposal to make the market out for gas deregulated or to be deregulated in the future effective for one year upon the enactment of the legislation.

Columbia has also added language to the market-out provision to permit pipelines the right of first refusal with respect to any gas for which a market out has been exercised and a bona fide offer has been received by the seller from a third party. Furthermore, Columbia has added a provision providing that for purposes of this section, any contract establishing two or more categories or subcategories of natural gas for purposes of pricing the natural gas delivered under the contract is to be treated as separate contracts for each category or subcategory. This provision is similar to that already provided for in S.615 with respect to the statutory take-or-pay limitation and is essential in order to make the market-out provision work as intended.

Indefinite Price Escalators

Columbia has added a new Section 305 to S.615 which declares indefinite price escalator clauses to be against public policy and unenforceable. For purposes of this section, an indefinite price escalator clause is defined as any contract provision which provides for the establishment or adjustment of the price for natural gas delivered under the contract by reference to prices for natural gas, crude oil, refined petroleum products or for any other commodity. These inflexible third-party favored nation clauses have, in large part, been responsible for the high prices which exist today. These clauses should not be allowed to continue to operate with respect to presently deregulated gas and gas which will eventually become deregulated.

Access to Gas Supply

Finally, there are other sections of S.615 for which Columbia has not provided any specific amendatory languge, but which raise critical and complex issues which require careful attention. This is particularly true with respect to the provisions providing for greater access to gas supplies by intrastate pipelines and the related provision providing the FERC with the authority to order interstate pipelines to transport gas on a contract basis. Under these provisions, an intrastate pipeline can purchase gas in another state, have it transported by an interstate pipeline by order of the FERC, sell it for resale in interstate commerce, and never become subject to the FERC's jurisdiction under the Natural Gas Act with all of the associated regulatory responsibilities and obligations. Under such circumstances, intrastate pipelines will be able to outbid interstate pipelines for new gas supplies, leading eventually to the return of the dual markets which resulted in the severe gas shortages of the 1970s.

2. Please provide the Committee with your estimate of the amount by which gas prices would increase or decrease, both over the short-run and over the long-run if S.615 is enacted.

Answer: It is impossible to quantify what the price of gas will be in 1985 and beyond under S.615. S.615 does not provide an orderly transition to a deregulated market. Rather, it provides for a chaotic confrontation between producers and pipelines in which prices are to be redetermined and in which supplies presently committed may be acquired by others.

Under S.615 a pipeline would have no fixed supply on which to build. All existing supplies can be marketed out. In order to supply its market, the pipeline in effect would be under extreme duress to meet the two-fold standards of prudence in pricing and prudence in obtaining adequate gas supply. It would have no way of knowing whether other potential purchasers would bid or how much of its committed supply will be lost.

With the probability of the vast majority of producer contracts being marketed out -- the low priced ones by the producers and the high priced ones by the pipelines -- it would follow that almost all gas would be up for renegotiation at about the same time. Columbia would have to renegotiate up to 7,100 contracts for gas presently dedicated to its pipeline.

If Columbia could not successfully renegotiate a large percentage of the gas supply presently dedicated to its system, it could be subject to claims that it has not acted prudently. If it paid a sufficient price to assure a high percentage of the recommitments it could be charged with paying imprudent prices.

For these reasons, S.615 will not provide the result which Congress desires and the public deserves: ample supplies of gas at reasonable prices.

3. Please provide the Committee with your estimate of the amount by which gas supplies and gas reserves would increase over both the short run and over the long run if S.615 is enacted.

Answer: Columbia believes that the enactment of S.615 will have little impact on gas reserves over the short term. We believe this to be true because of the existing excess deliverability within the industry. The true level of the excess cannot and will not be determined until after existing high price gas contracts have been renegotiated and order returned to the marketplace. Until such time as the excess deliverability is defined and eliminated or reduced to a level such that purchasers will not be exposed to take-or-pay payments or minimum bill payments, there will be little exploratory or development drilling which would result in reserve additions. It is entirely likely that supply disruptions could be experienced in certain areas until market ordering occurs. After what is expected to be to be a long and difficult transition period because of S.615's many shortcomings, and the eventual return of supplies and demand to equilibrium, there should be adequate reserves developed in the long run to serve what markets remain.

4. Please provide the Committee with your estimate of the level of the gas cap if S.615 were enacted today and the amount by which the cap would reduce average purchased gas costs.

Answer: As S.615 is presently structured the gas cap provision will be in effect through 1985. Due to present excess of gas supply, very few new contracts are being executed. The few that are being executed contain pricing terms either below the Maximum Lawful Price for Sections 102 and 103 gas or for deregulated gas, at a level which approximates the market clearing price. Under the renegotiation provision of S.615, Columbia would expect the amendment of many contracts with the amended prices also approximating market clearing levels.

5. Some witnesses appearing before the Committee have suggested that enactment of S.615 would bring about chaos in the gas market. Please provide the Committee with your assessment of the prospect of that occurring.

Answer: If S.615 is enacted, the entire gas industry could well be thrown into chaos, and this chaos could commence in the middle of 1984-85 heating season. On the one hand, the gas pipelines will be attempting to renegotiate their high-cost gas contracts downward. On the other hand, the producers with low-cost gas contracts will be negotiating for higher prices. Given the magnitude of the number of gas purchase contracts (Columbia alone has over 7,100), it will be virtually impossible due to limitations of manpower and time (45 days) for the industry to renegotiate all of these agreements in time to prevent supply disruptions. In addition, true bargaining will not take place since the gas volumes represented by high-cost and low-cost contracts are not balanced between a particular pipeline and a producer. There is a serious flaw in S.615 in that it fails to take into account that this natural gas market must be served at all times. Possible disruptions could occur while negotiations for new contracts were taking place. Thus, the pipelines, in order to serve their customers, would be placed in an unfair bargaining position vis-a-vis the producers. The producers can cap wells and wait; the pipelines and their customers must have the gas.

Moreover, S.615 would give the intrastate pipelines a hunting license on the low-cost gas presently under contract to the interstates. With little or no accountability to regulatory authority, the intrastates could free-wheel to the detriment of the interstate pipelines in that no "gas cap" would exist for the intrastates.

The intolerable condition created by the chaotic state in the gas industry caused by S 615 will result in one of two outcomes: higher prices for the consumers, or gas supply disruptions.

Attachment A

S.615 Amendments

TITLE I--PURCHASED GAS COSTS

On page 2, commencing with line 2, strike all of the remaining language in Title I through line 8 on page 6 and insert the following:

"SEC. 101. Section 601(c)(2) of the Natural Gas Policy Act of 1978 (15 U.S.C. 3431(c)(2)) is amended by inserting: "imprudence" after "abuse,"

TITLE II--REMOVAL OF WELLHEAD PRICE CONTROLS AND REPEAL OF JURISDICTION OVER CERTAIN FIRST SALES

On page 6, line 20, strike lines 17-24 and insert the following:

"(a) GENERAL RULE.--The provisions of subtitle A respecting the maximum lawful price for any first sale of natural gas shall cease to apply to any first sale of natural gas subject to any contract that was executed or amended after the date of enactment of this Act. The provisions of subtitle A respecting maximum lawful prices shall not cease to apply if the contract specifically provides that the contract shall not operate to terminate the application of subtitle A or if the gas to be sold under said contract is subject to the Commission's jurisdiction for purposes of Section 1(b) of the Natural Gas Act."

On page 9, strike lines 4-8 and insert the following:

"(d) NATURAL GAS PRODUCED FROM 5,000 FEET OR LESS.--Except as provided in subsection (a) of this section, effective beginning July 1, 1987, the provisions of subtitle A respecting the maximum lawful price for any first sale of natural gas shall cease to apply to any first sale of natural gas produced from any new, onshore production well (as defined in Section 103(c)), if such natural gas--

"(1) was not committed or dedicated to interstate commerce on April 20, 1977; and

"(2) is produced from a completion location which is located at a depth of 5,000 feet or less.

"(e) EXCLUSION OF CERTAIN ALASKA NATURAL GAS.--The provisions of subsections (c) and (d) shall not apply to any natural gas produced from the Prudhoe Bay Unit of Alaska and transported through the natural gas transportation system approved under the Alaska Natural Gas Transportation Act of 1976."

Strike the language commencing on page 9, line 9, and continuing through line 21 on page 10.

TITLE III--TRANSITIONAL PRICE AND CONTRACT PROVISIONS

On page 13, line 2, strike "five" and insert "fifteen".

On page 14, strike lines 12-15 and insert the following:

"SEC. 302(a). Title III of the Natural Gas Policy Act of 1978 (15 U.S.C. 3375) is amended by adding a new section 316 to read as follows:

'SEC. 316. IMPOSITION OF TAKE-OR-PAY LIMITS.'"

On page 14, line 22, strike "70" and insert "50".

On page 14, line 25, strike "70" and insert "50".

On page 15, line 1, strike "70" and insert "50".

On page 15, strike the sentence beginning on line 2 and ending on line 5 and insert the following: "This right shall apply for three years following the date of enactment of this Act."

On page 15, line 7, insert after "section" the following: "or desire to restore such volumes".

On page 15, strike lines 10-17 ending with the word "law." and insert the following:

"(c) RELEASE OF VOLUMES.--During such periods as purchaser is exercising its rights under subsection (a), the seller shall have the right to resell those volumes not taken by purchaser by reason of this section."

On page 15, at the end of subsection (d), insert the following:

"Provided however, that any person seeking to utilize such rule or order must have first sought to protect itself through all reasonable means including, but not limited to, the invocation of any available statute or regulations relating to the unitization of reservoirs."

On page 16, line 5, insert "or subcategories" after "categories".

On page 16, line 8, strike the "." and insert "or subcategory."

On page 16, after subsection (f) insert the following:

"(g) AFFILIATED PRODUCERS.--A pipeline may not reduce under this section the volumes it has contracted to take delivery of if it has not first reduced deliveries of natural gas which are at the same or a higher price and which it is under contract to take from any person who is an affiliate of the pipeline; provided, however, that a pipeline shall not be required to first reduce deliveries of natural gas from an affiliate when the deliveries are required to maintain service or for other operating purposes."

On page 16, At the end of subsection (b) strike "Sec. 315. Imposition of Take-or-Pay Limits" and insert "Sec. 316. Imposition of Take-or-Pay Limits".

On page 16, line 17, strike "SEC. 316." and insert "SEC. 317."

On page 16, lines 18 and 19, strike "Beginning January 1, 1985, either" and insert "Either".

On page 17, strike lines 1-5 and insert the following:

"(1) the natural gas must be presently decontrolled or be subject to the elimination of price controls under subsections (b), (c) or (d) of Section 121;

"(2) the party wishing to terminate the contract must give notice to the other party within one year following the date of enactment of this Act, and at least 45 days in advance, that the contract is to be terminated;"

On page 7, line 6, strike "(2)' and insert "(3)".

On page 17, line 9, strike "(3)" and insert the following: "(4) subject to the provisions of subsection (c),".

On page 17, line 22, insert "(i)" after "except that".

On page 18, line 5, insert after "contract" the following:

> "and (ii) a pipeline which is a party to a contract terminated under this Section 316 shall have the option of purchasing the natural gas covered thereby under the same terms and conditions as are contained in a bona fide offer for the purchase of the natural gas received by the seller from another party. Notice of the terms and conditions of a bona fide offer must be given to the pipeline

within 15 days of receipt. Such option to purchase shall terminate unless exercised within 45 days following receipt of notice of the bonafide offer."

On page 18, line 20, strike "may" and insert "will."

On page 19, line 7, insert "$0.05" after "such".

On page 19, after subsection (3), insert the following:

"(e) CONTRACTS COVERING MORE THAN ONE CATEGORY OF NATURAL GAS.--For purposes of this Section 316, any contract establishing two or more categories or subcategories of natural gas for purposes of pricing the natural gas delivered under the contract shall be treated as separate contracts for each such category or subcategory."

On page 19, line 12, strike "315" and insert "316.".

On page 19, at the end of subsection (b), strike "Sec. 316. Market-Out Provision" and insert "Sec. 317. Market-Out Provision".

On page 19, line 16, strike "318" and insert "319".

On page 19, line 17, strike "SEC. 318." and insert "SEC. 319."

On page 20, strike subsection (b) on lines 3-6.

On page 20, at the end of subsection (b), strike "Sec. 318. Effect of Gas Cap Price" and insert "Sec. 319. Effect of Gas Cap Price".

On page 20 after subsection (b), insert the following:

"INDEFINITE PRICE ESCALATORS"

"SEC. 305. Title III of the Natural Gas Policy Act of 1978 (15 U.S.C. 3361-3375) is amended by adding a new section 320 to read as follows:

"SEC. 320. INDEFINITE PRICE ESCALATOR CLAUSE.

"(a) GENERAL RULE.--Any indefinite price escalator clause contained in any contract applicable to the first sale of natural gas is hereby declared to be against public policy and unenforceable.

"(b) DEFINITION OF INDEFINITE PRICE ESCALATOR CLAUSE.--For purposes of this section, the term 'indefinite price escalator clause' means any provision of any contract --

"(1) which provides for the establishment or adjustment of the price for natural gas delivered under such contract by reference to prices (established by other contracts or otherwise) for natural gas, for crude oil, for refined petroleum products, or for any other commodity, or

"(2) which the Commission determines is comparable in form and result."

APR 0 6 1983

Howard

Official Committee File

Wayne D. Johnson
PRESIDENT

April 5, 1983

SENATE COMMITTEE ON
ENERGY AND NATURAL RESOURCES
RECEIVED
APR 7 1983
WASHINGTON, D.C. 20510

Honorable James A. McClure
Chairman, Senate Committee on
Energy and Natural Resources
Dirksen Senate Office Building
Washington, DC 20510

Re: Response of Entex, Inc. to Additional Questions for Natural Gas Hearing Record on S.615

Dear Mr. Chairman,

Submitted herewith are the answers of Entex, Inc. to the additional questions of members of the Senate Committee on Energy and Natural Resources relative to hearings held on March 12, 1983 on S.615. I appeared that day on panel number two. Entex's responses are segregated based upon the questions raised by Republican members and Democratic members of the Committee as follows:

I. Questions from Republican Members of the Committee:

A. Please provide the Committee with the specific legislative language necessary to implement those changes to the Administration's bill, S.615, that you identified in your oral and written testimony as being necessary. Also please provide the Committee a justification for each of your recommended changes.

Entex Response: There are several features contained in S.615 which contradict free-market principles, which Entex favors, and which in turn will add a new system of regulatory controls, both direct and indirect, only to frustrate the announced intent of S.615. Therefore, while we view S.615 as a useful vehicle for dialogue, Entex believes the bill has serious disadvantages which must be remedied, as follows:

ENTEX, INC., P.O. BOX 2628, HOUSTON, TEXAS 77001, (713) 654-5560

1. Decontrol - §201.

Entex supports immediate decontrol of all gas whether "new, new" gas, NGPA §107 gas, "old" gas, or all "other" vintages of gas. Controls should be lifted as of the date of enactment of S.615. We realize, however, that the chances of persuading Congress to adopt legislation producing this immediate result are quite low. Therefore, as a compromise, controls on NGPA §102, §103, §105, §108, §109 and all "new, new" gas (gas contracted for after date of enactment of S.615) could be lifted immediately. Controls on "old" gas (i.e., NGPA §104) could be phased out over a three-year period. If NGPA §107 prices are to be frozen at a predetermined level, controls on this gas could also be lifted within a three-year period. During the three-year phased decontrol period, the price of "old" gas and NGPA §107 gas could be adjusted annually (by 33-1/3 percent) to reflect the difference between the national weighted average price of "new, new" gas contract purchases and the "old" gas price. Alternatively, a date three years subsequent to the effective date could be selected; this approach would eliminate the complicated mechanics of a phased elimination of controls and would force pipelines to adopt competitive purchasing practices immediately in preparation for the day on which §104 gas would become decontrolled.

2. Pipeline PGA's - §101 and §603(a).

Section 101 seeks to amend the existing provisions of Section 603 of the NGPA by in effect prohibiting an increase in any pipeline's PGA by an amount greater than the "standard adjustment," which is basically an estimate of the rate of inflation calculated on a nationwide gas cost base. Without a general rate proceeding on the prudence of its purchasing practices, a pipeline cannot pay more than its current average gas cost plus the standard adjustment. The fundamental message conveyed by the provision is clear: field prices will be decontrolled but only to the extent that the pipelines are permitted to pay for it.

Section 603(a) as revised would prohibit the immediate pass through of purchased gas costs to the extent such costs increase faster than the rate of inflation. Greater increases could not go into effect unless the FERC had made an affirmative determination after hearing that the costs were just, reasonable and prudently incurred. Given the enormous potential penalty of being unable to pass through gas cost plus the short term loss of working capital even if the increase in gas cost is eventually upheld, prudent pipelines simply will not pay more for gas than an amount which in the aggregate would exceed the rate of inflation. Is this really decontrol? We think not. We think it is gravely misleading to say that the producer can receive more than the old gas price, but that the pipeline cannot pay it.

In actual operation, the proposed Section 603 could prove to be highly discriminatory. Although the standard adjustment is a nationwide amount applicable to all pipelines, the base for each pipeline is its own average gas cost. There is presently an enormous variation between the gas costs of the various pipelines in this country. Since a low cost pipeline would have very little base to work from in renegotiating new contracts on old gas, such a pipeline would be harmed immensely by the new system of PGA controls. Under almost any system for decontrol, the low cost pipelines will have to adjust to loss of their old gas prices; under S.615, however, they would lose not only their low prices but the reserves themselves. The market clearing prices necessary to renegotiate contracts successfully would produce dollar increases in excess of the standard adjustment and would require a general rate proceeding.

High cost pipelines could benefit from the revised Section 603 if they can find a way to dump a major increment of high cost supply out of their calculations. If, for example, a pipeline with a high gas cost can find a way to avoid taking expensive LNG, it would have a great deal of room to acquire lower cost reserves lost by low cost pipelines. Notice, however, that this potential advantage would be lost or reduced if a high cost pipeline took any action to reduce gas cost prior to the effective date of S.615. S.615 thus discourages the current, laudable efforts of high cost pipelines to force their gas cost down.

Entex Recommendation: While the abuses suggested above might or might not occur, the point is that in creating a whole new set of controls revolving around pipeline PGA's, Congress would be creating a new regulatory scheme as pernicious as the old gas cushion which S.615 purports to eliminate. Entex believes that the way to eliminate controls is to eliminate them, not to replace them with a new regulatory scheme. Accordingly, Section 101 and Section 603(a) of S.615 should be revised to allow pass-through of increases in purchased gas cost whether attributable to "new, new" gas, "old" gas, NGPA §107 gas, or all other gas under contracts entered into prior to or after date of enactment. In the event a three-year period of phased decontrol is provided for "old gas" and NGPA §107 gas, then Section 101 and Section 603(a) of S.615 should be revised to allow pass through of increases in purchased gas cost attributed to "old" gas and NGPA §107 gas based upon the price-controlled levels reflected in the three-year phase out.

3. The "Gas Cap" Price - §301.

Section 301 would add a new Section 111 to the NGPA which would establish a new limit, or price cap, for all currently controlled natural gas except Section 107 gas. The price cap would be the lesser of the maximum lawful price under any other section of the NGPA and the "gas cap price," which would be the average price of natural gas under recent new or amended contracts. In submitting the new Section 111, the drafters took aim at the tendency of maximum prices to become minimum prices. They did so, however, by imposing a new maximum price -- the "consensus All-American price" -- which will become the new minimum. In our opinion, this is another step in the wrong direction.

It is quite true that until recently the maximum prices established by Sections 102, 103 and 107 have tended to become price floors propping up wellhead prices instead of holding them down. As is explained in Entex's testimony, the current imbalance between supply and demand has finally cut the knot that bound maximum prices to minimum prices. This highly desirable rsult represents the free market at work. The new Section 111 reties the knot by attempting to legislate what the free market creates. To state the proposition is to reveal the internal inconsistencies therein.

The "gas cap" is not only inconsistent with a free market, but it invites the same type of game-playing which was produced by the old gas cushion and which is the inevitable consequence of price regulation. At the present time, pipelines are beginning to buy gas in isolated transactions at less than the 102 price. The existence of such prices would tend to lower the gas cap and might produce prices on controlled gas at levels less than the 102 price. The existence of a gas cap would stiffen the negotiating position of pipelines because concessions on new contracts would produce lower prices on existing 102 contracts.

Entex Recommendation: Entex recommends that we let the free market work and not create new mechanisms which the inventive will surely use to further a purpose which will frustrate the intended result. To this end, §301 of S.615 should be dropped. However, if a three-year phase out of controls is adopted for NGPA §104 and §107 contracted gas, then the Gas Price Cap should be based on the national weighted average of prices paid by pipelines for "new, new" gas during the most recent three-month period. The price under §104 contracts and §107 contracts (to the extent it does not already exceed Gas Price Cap) should be adjusted annually to allow an increase of 33-1/3 percent per year of the difference between contract price and Gas Price Cap.

4. Take-or-Pay - §302.

As indicated in Part 3 of Entex's testimony, we believe that the take-or-pay problem is best addressed through a temporary system of pro rata takes on a pipeline-by-pipeline basis. Texas has such a system at the present time. While the system has flaws and is not easy to administer, it does work and provides a rough measure of justice among producers. Attached hereto is a letter forwarded by Entex to the Committee which explains the Texas ratable take rule.

New Section 315 to S.615 is a worse approach in our opinion. First, the 70% of available deliverability -- above which takes are excused -- is too high. Takes by most intrastate pipelines in Texas, for example, are well below this figure. The only alternative available to a pipeline operating well below this limit would appear to be to release the reserve entirely. Second, the mechanics of release of quantities above 70% are unclear: if one releases 30%, does the 70% then apply to the reduced obligation, thus starting the process all over again? Third, the 70% provision appears not to take into account seasonal variations in takes necessitated by seasonal variations in loads. One needs to remember that it is the market which creates the takes, not the reverse.

Entex Recommendation: We recommend that the Committee seriously consider revising §302 and adopt language which reflects the concepts embodied in the Texas ratable take rules which provide for a temporary system of pro rata takes on a pipeline-by-pipeline basis. Alternatively, if the Committee adopts an approach to take-or-pay based upon a percentage of deliverablity, that percentage should be no higher than 50 percent. If a purchaser is to be required to release 50 percent of deliverability, then the percentage restriction should not apply to the reduced obligation. Seasonal variations in takes must also be taken into account. A specific make-up period should be provided for gas paid for but not delivered. If a purchaser cannot make up gas within the specified period of time, then unrecouped take-or-pay payments should be repaid.

5. Intrastate Purchase of Interstate Gas - §401 and §402.

Section 401 would facilitate transactions between the interstate and intrastate markets without subjecting those transactions to certification procedures under Section 7 of the Natural Gas Act and without requiring intrastate companies to become jurisdictional "natural gas companies" under that Act. Entex strongly opposes these provisions because we believe it fundamentally alters the manner in which the industry has been organized and regulated since its inception.

The Natural Gas Act of 1938 was designed to close a regulatory gap which had theretofore existed. The commerce clause prevented states, who already had jurisdiction over intrastate pipelines and distribution utilities, from regulating the interstate movement of gas. That gap was closed by giving the old Federal Power Commission jurisdiction over interstate pipelines. Extensive litigation (and the Henshaw Amendment, i.e. §1(c) of the NGA) has created a well defined set of relationships between state and federal authorities and between interstate pipelines, intrastate pipelines and local distribution companies.

The systems of regulation applicable to interstate pipelines and to intrastate pipelines are fundamentally disparate. Oversimplifying, interstate pipelines are subject to pervasive regulations including overall cost of service and rate of return limits. Many intrastate pipelines, including those in Texas, Louisiana and Mississippi, operate in an essentially free market environment in which rates to large volume customers are set on a market basis and in which there are no limits on rate of return. Many other illustrations of the differences between federal and state regulatory schemes could be given.

S.615 reshuffles these well defined relationships. It would permit an intrastate pipeline to purchase from an interstate pipeline without subjecting itself to the Natural Gas Act. Essentially, an intrastate pipeline would have all of the privileges of being an interstate pipeline without any of the obligations which go with that status. In such an environment it is inevitable that new regulatory gaps will arise and that enormous confusion will follow. Entex purchases from both interstate and intrastate pipelines. We want to know who is who.

Entex Recommendation: If intrastate pipelines are to have equal access to gas supplies and be accorded equal treatment with interstate pipelines, then regulation of the pipeline industry should be uniform. This can be accomplished by (1) allowing intrastate pipelines to establish affiliates which are statutory "natural gas companies" under the Natural Gas Act which will permit them to obtain equal access to gas supply, (2) bringing transactions of intrastate pipelines, which would otherwise be considered jurisdictional for Natural Gas Act purposes, under the purview of the FERC's certification and review process under Sections 4 and 7 of the Act. Covered transactions would not be selfexecuting, but rather the FERC would undertake uniform regulation and scrutiny of inter and intrastate pipeline transactions and thereby avoid any "attractive gap" between federal and state regulation.

6. Contract Carriage - §403.

Entex has grave reservations about the proposed Section 317 which would provide that the FERC shall order an interstate pipeline to transport gas on behalf of the producer and purchaser under terms and conditions prescribed by the Commission. Transportation arrangements are, of course, common under existing law and the FERC has full authority to regulate such transactions. The obvious intent of Section 317 is to provide regulatory incentives for large industrial users to enter into purchase arrangements with producers and to compel the pipelines to transport the gas so purchased.

On its surface the proposal appears to be a means of promoting competition by eliminating the wholesaler and the retailer. When the distributor loses an industrial sale, the lost margin must be found elsewhere in order to maintain the financial integrity of the utility. The result is an increase in the rates to domestic customers. Entex submits that the decontrol issue is difficult enough without setting of rate cases all over the country because of lost industrial sales.

The proposed Section 317 would have the additional vice of permitting the segregation of gas cost without regulatory scrutiny. By way of explanation, pipeline gas costs are an average of high and low prices; distributors with multiple sources of supply also sell gas on a basis representing the average of their souces of supply. In a falling market such as that which presently prevails, a large industrial user could purchase gas at the lowest price at which a pipeline could purchase gas and thereby avoid buying at the average cost. While segregation of supply by distributors has numerous regulatory precedents as a necessary competitive technique, it is only available subject to regulatory scrutiny. No such scrutiny would be attendant upon a transaction between a large industrial customer and a producer.

Entex Recommendation: Section 317 to S.615 should be dropped.

7. Market-Out - §303.

If price controls on all gas are removed on date of enactment, Entex believes that either party to a contract should be able to market-out of the contract from January 1, 1984 through December 31, 1984 provided 45-days notice is given and either party does not breach the contract during the notice period.

In the event price controls remain on "old" gas and NGPA §107 gas over a three-year phase out, period, then either party should be able to market-out during the one-year period immediately following the decontrol date, provided 45-days notice is given and neither party breaches the contract during the notice period.

Additionally, a producer should be permitted to terminate a contract if it can sell gas on more favorable terms than that offered by the purchaser if the producer markets-out. Finally, if a purchaser elects to market-out, it should transport gas for any new purchaser at appropriate rates established by the FERC.

8. Repeal of Fuel Use and Incremental Pricing Laws.

Entex believes the provisions contained in S.615 are acceptable as drafted.

B. Please provide the Committee with your estimate of the amount by which gas prices would increase or decrease, both over the short-run and over the long-run if S.615 is enacted.

Entex Response: We cannot provide an accurate estimate of how much gas prices may increase or decrease, over the short- or long-run, if S.615 is enacted. Based upon existing market forces over the past several months, the intrastate price of gas from two major Texas suppliers has dropped approximately 15 cents per MMBtu. Entex expects a further drop in price from these suppliers this year in the neighborhood of 20 cents per MMBtu. Should S.615 be enacted without changes, the price of gas will vary throughout the country depending upon pipeline supplier. A pipeline with a low average purchased gas cost will experience increases whereas a pipeline with a high average purchased gas cost will experience decreases.

C. Please provide the Committee with your estimate of the amount by which gas supplies and gas reserves would increase or decrease, both over the short-run and over the long-run, if S.615 is enacted.

Entex Response: We cannot provide accurate information to answer the questions.

D. Please provide the Committee with your estimate of the level of the gas cap if S.615 were enacted today and the amount by which the cap would reduce average purchase gas costs.

Entex Response: We cannot provide accurate information to answer the questions.

E. Some witnesses appearing before the Committee have suggested that enactment of S.615 would bring about chaos in the gas market. Please provide the Committee with your assessment of the prospect of that occurring.

Entex Response: Please refer to our earlier response to Question A and, more particularly, to the discussion relative to the PGA Passthrough provisions, Gas Price Cap provisions, Take-or-Pay provisions, Intrastate Pipeline Access to Gas Supply provisions, and Contract Carriage provisions.

II. Questions from Democratic Members of the Committee:

A. Do you support any of the bills pending before the Committee on Energy and Natural Resources? If so, please indicate which one(s).

Entex Response: In the absence of substantial modifications (as discussed in Entex's response to Question A of the Republican Members), Entex does not support S.615. Neither do we support the NGPA.

B. Please provide the Committee with specific statutory language for any amendments you would like to see adopted if the Committee were to use S.615 as a mark-up vehicle for natural gas legislation.

Entex Response: Please refer to Entex's response to Question A of the Republican Members (as set forth above).

C. If the amendments you support are not adopted, and if you personally had to vote up or down on S.615, would you support it or would you support a continuation of the existing law?

Entex Response: If the recommended changes we support are not adopted, Entex cannot support either passage of S.615 or continuation of the existing law (i.e., the NGPA) for reasons discussed in our testimony.

D. If controls are removed in the manner proposed by the Administration, or in any other manner, will prices rise or fall? By how much? Why?

Entex Response: The current market clearing price for natural gas ranges from $2.75-$3.30 per MMBtu depending upon the area of the country. In the event of decontrol, gas prices will increase in areas of the country where the overall weighted average cost of gas to pipelines is below market clearing levels. Conversely, the price of gas will decrease in areas of the country where the overall weighted average cost of gas to pipelines is above market clearing levels.

E. If prices fall, how much will production fall?

Entex Response: If prices fall production will go up, not down. However, as reflected in Entex's testimony, exploration over the long run will go down because a lower price will result in decreased drilling activity.

F. Can you explain specifically and in detail why prices are not falling now?

Entex Response: As explained in Entex's testimony, prices for gas throughout the country are indeed falling right now because pipelines's are exercising market-out clauses or the market clearing price is below the NGPA §102 price. In those areas of the country where the price is not falling, it is due to either inflexibility of contract language (e.g. no market-out provision) or the fact that the NGPA established maximum ceiling prices that became minimum prices (as discussed in Entex's testimony).

G. Giving a broad interpretation to the Natural Gas Act and the Natural Gas Policy Act, what authority might the FERC have to remove any barriers that exist at the present time to the fall in prices? Could its authority under Section 601(c) of the NGPA, concerning limitations on pass throughs in the event of "fraud, abuse, or similar grounds," be interpreted to provide such authority? Could its rulemaking authority under Section 501(a) of the NGPA be used to rectify the situation?

Entex Response: The authority of FERC to undertake the described actions is questionable. If FERC did, there would no doubt be years of court litigation leading to a great deal of confusion and chaos in the industry. Many of the problems currently facing the industry (e.g. take-or-pay, gas pricing generally) were created legislatively by the NGPA. Entex believes these problems require a legislative solution, not years of litigation and uncertainity over actions taken by FERC over which it may have questionable authority.

We hope that the foregoing answers fully respond to the questions directed to Entex, Inc. by members of the Committee on Energy and Natural Resources. Should you have any additional questions, or require clarification, please feel free to contact us.

Very truly yours,

Wayne D. Johnson

WDJ:wh

Attachment

dation is adverse to a party in the docket, a proposal will be issued. Exceptions to the proposal may be filed within 13 days after service, and replies to exceptions may be filed within 18 days after service. Exceptions and replies must be served on all other participants and be received by the commission within these times in order to be considered.

(f) Dockets will be consolidated if practicable for presentation of the examiner's recommendations to the commission.

(g) If a person alleging a justiciable or administratively cognizable interest was not given notice, a written motion in intervention may be filed by the date of commission consideration in open meeting showing good cause for the commission to grant the intervention or take other appropriate action.

(h) Motions for rehearing may be filed within 15 days of an order. A reply thereto may be filed within 25 days of the order. Motions and replies must be received by the commission within these times in order to be considered.

(i) Within five days after the last day for filing a motion for rehearing or, if such a motion is filed, within 15 days after it is denied or overruled by operation of law, the commission will transmit to the FERC a copy of its determination, together with the record and any additional material required. Notice of the transmittal will be given to the applicant, nonoperators, and, in the case of section 108 determinations, to the purchaser(s).

(j) If a determination is reversed by the FERC, an applicant may file a new application based on additional evidence. If a determination is remanded by the FERC, notice will be sent to all parties, and a hearing will be scheduled if required.

Authority: The provisions of this § 3.84 issued under Acts 1977, 65th Leg., ch. 871, art. I, effective September 1, 1977, as amended (Natural Resources Code §§ 81.001 — 113.234).

Source: The provisions of this § 3.84 amended to be effective April 25, 1980, 5 TexReg 1418.

MISCELLANEOUS

§3.91 (051.02.99.001). Gas Market Demand, Allocation of Gas Well Allowables, and Ratable Take between Gas Wells and Gas Fields.

This section supplements, but does not amend or repeal any existing commission rule.

(1) The following definitions are applicable to this section:

(A) *First purchaser* — One purchasing natural gas from a producer.

(B) *Downstream purchaser* — One purchasing natural gas for resale from other than a producer.

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(2) The producer's forecast (Form G-7) and the purchaser's nomination (Form T-3), both required by §3.30 (051.02.02.030) of this title (relating to Gas Nominations Required) (Statewide Rule 30), shall be utilized in arriving at the actual demand for gas from all gas producing fields in the State of Texas.

(3) Operators of gas wells (producers) shall submit the following information, depending on the type of gas field in which the gas wells are completed:

(A) For those gas fields with special field rules which establish gas allocation procedures (prorated), the producer shall furnish the following:

(i) Form P-4, producer's certificate of compliance (on which the gatherer, the first purchaser, and the initial nominator shall be named).

(ii) Form G-10, gas well status report (semiannually unless otherwise required by the special field rules).

(iii) Form G-7, producer's forecast (monthly as required by §3.30 (051.02.02.030) of this title (relating to Gas Nominations Required) (Statewide Rule 30) and in accordance with instructions on Form G-7). Each producer shall forecast a total quantity of gas not to exceed the amount of gas the producer expects to consume *(e.g.,* for compressor use, cycling, lease operations, *etc.)* plus the amount of gas it expects to deliver to its purchasers as indicated by information provided by its initial nominators pursuant to paragraph (4) of this subsection.

(B) For gas wells in fields operated under statewide rules or in fields having special spacing rules but with no gas allocation provisions (nonprorated):

(i) Form P-4, producer's certificate of compliance (on which the gatherer, the first purchaser, and the initial nominator shall be named).

(ii) Form G-10, gas well status report (semiannually in accordance with instructions on the form).

(C) For gas wells completed in associated reservoirs and operating under §3.49(b) (051.02.02.049(b)) of this title (relating to Gas-Oil Ratio) (Statewide Rule 49):

(i) Form P-4, producer's certificate of compliance (on which the gatherer, the first purchaser, and the initial nominator shall be named).

(ii) Form G-10, gas well status report (annually in accordance with instructions on the form).

(4) Subject to approval by the staff of the Oil and Gas Division, a first purchaser may request someone else to act as its initial nominator. Otherwise, the first purchaser shall act as initial nominator. The initial nominator of gas from any gas well in the State of Texas shall prepare and file monthly Form T-3, Purchaser's Nomination, in accordance with the instructions on the form. At least five days prior to the deadline for filing its Form T-3, each

initial nominator shall inform its producers of the amount it intends to nominate from each producer. Each initial nominator shall nominate for a total quantity of gas equal to the sum of the following:

(A) The quantity for which the initial nominator is the ultimate consumer. This amount will include lease shrinkage, line loss, plant fuel, compressor use, as well as the gas which the initial purchaser may consume at the point of final delivery.

(B) The total quantity of gas nominated by its downstream purchasers in accordance with the following provisions:

(i) All downstream purchasers who take more than 10 mmcf per day shall submit monthly to their initial or first nominators of gas a downstream purchaser's nomination based on a firm forecast of that purchaser's actual demand.

(ii) If a downstream purchaser takes gas from more than one source of supply, that downstream purchaser's nomination shall show expected demand from each source.

(iii) A downstream purchaser's nomination shall be based on that purchaser's purchase and sale contract obligations, system capacity requirements, customer demand, and other similarly related factors. Actual takes by a downstream purchaser shall be reasonably proportional to its nominations, although it may first satisfy its contractual minimum take obligations.

(iv) Such written monthly nominations from downstream purchasers shall be kept on file by the initial nominator for commission inspection and shall be filed with the commission on its request.

(5) The initial nominator of gas shall ratably apportion its nominations on Form T-3 and shall ratably apportion its actual take from all gas wells connected to its system so that takes from various gas producing properties shall be made without discrimination in favor of one producer or person as against another in the same field and without unjust or unreasonable discrimination as between fields. The following instructions shall apply to initial nominators in preparing nominations (Form T-3) and in taking gas from various sources of supply, and to commission staff in calculating allowables:

(A) Nominations shall be based on each well's deliverability as reflected by the well's Form G-10 on file with the commission. Actual takes shall be based on the commission's assigned allowable for each well, with proper recognition for special allowable wells and limited capacity wells.

(B) First priority in the nomination for the purchase of gas shall be given to casinghead gas and second priority to Statewide Rule 49(b) gas so that gas produced in association with oil production shall not be wastefully vented and oil production shall not be unnecessarily curtailed. Under special circumstances, if market demand factors or temporary pipeline, com-

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pressor, or other operating difficulties result in less take from a Rule 49(b) gas well than its permitted allowable, then by special commission authority such underproduction may be carried forward and balanced as would be the case for any other gas well, provided, however, that no Statewide Rule 49(b) gas well may be allowed to overproduce its permitted allowable by a cumulative total in excess of one month's allowable.

(C) No gas well of any kind shall be given an allowable in excess of its capability to produce.

(D) Each new gas well operated under §3.28 (051.02.02.028) of this title (relating to Potential of Gas Wells To Be Ascertained and Reported) (Statewide Rule 28) and §3.29 (051.02.02.029) of this title (relating to Production of Gas Limited to 25% of Potential Capacity) (Statewide Rule 29) shall be assigned an allowable not to exceed the deliverability test volume as reported on Form G-10.

(E) Actual takes from a limited capacity well in a prorated field shall not be reduced to less than its capacity to produce unless all wells in the same field with capacity to produce exceeding that of the limited capacity wells have had their actual takes ratably reduced to the level of such limited capacity well. Texas Natural Resources Code §86.091 shall control the minimum takes from gas wells.

(6) No field shall be prorated pursuant to §3.29 (051.02.02.029) of this title (relating to Nonassociated Gas Well Allowable) (Statewide Rule 29) if each well in the field has a daily deliverability of 200 mcf or less. Wells in such fields shall be assigned allowables equal to their capacity to produce.

(7) The initial nominator of gas shall maintain and submit to the commission on request the following information:

(A) The physical capacity of the system for handling gas.

(B) The total monthly market demand for gas from the system.

(C) The nominations made for each field or reservoir connected to the system (both prorated and nonprorated).

(8) On complaint of noncompliance with the provisions of this section, or alleged discrimination as prohibited by the Common-Purchaser Act, Texas Natural Resources Code §§111.081 — 111.097, such matter will be set for hearing by the commission to determine if alleged complaints of discrimination are true, and if true, the necessary action to be taken.

(9) The commission's procedure of fieldwide balancing of overproduction and underproduction shall remain effective for all gas fields, provided that should it be determined by the commission, either on complaint by an interested party or on the commission's own initiative, that fieldwide balancing is not operating properly for an individual field, the commission, after notice and hearing, shall suspend fieldwide balancing for such field and take any other appropriate action to accomplish the purpose of the allocation of

production rules.

(10) If the operation of this section causes undue hardship for any person, the commission may grant an exception after proper notice and hearing.

Authority: The provisions of this §3.91 issued under Acts 1977, 65th Leg., ch. 871, art. I, effective September 1, 1977, as amended (Natural Resources Code §§51.291 — 51.303, §§52.291 — 52.296, §§81.001 — 113.234, §§131.001 — 131.270, and §§141.001 — 141.079).

Source: The provisions of this §3.91 adopted to be effective February 5, 1978, 3 TexReg 324; amended to be effective October 5, 1978, 3 TexReg 3617; amended to be effective February 15, 1980, 5 TexReg 335.

NATURAL GAS POLICY ACT (NGPA) STATE ALTERNATE PROCEDURES

Authority: The provisions of these §§3.101 — 3.104 issued under Acts 1977, 65th Leg., ch. 871, effective September 1, 1977 (Texas Natural Resources Code §81.052), unless otherwise noted.

Source: The provisions of these §§3.101 — 3.104 adopted to be effective January 9, 1981, 5 TexReg 5048, unless otherwise noted.

§3.101 (051.02.04.001). Definitions.

The following words and terms, when used in this chapter, shall have the following meanings, unless the context clearly indicates otherwise:

Commencement of surface drilling — The spud date.

Commission and *RRC* — The Railroad Commission of Texas.

FERC — The Federal Energy Regulatory Commission.

Operator — A person acting for himself or as an agent for others and designated to the commission as the one who has primary responsibility for complying with its rules and regulations in any and all acts subject to the jurisdiction of the commission.

Other seller — A person who sells natural gas from the subject well under a contract separate from the operator's contract.

Sections 102, 103, 107, and 108 — Those sections of the Natural Gas Policy Act of 1978 (NGPA).

§3.102 (051.02.04.002). Application Procedure.

(a) An application for a category determination may be filed by the operator of a well, or, when the operator has declined to file an application, by any other seller or a working interest owner. A filing by either any other seller or a working interest owner must be accompanied by a statement that the operator

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SUMMARY OF TEXAS RATABLE TAKE RULE

The Ratable Take Rule, 16 T.A.C. §3.91 (a copy of which is attached), provides that a purchaser proportion its takes from producers in a manner to prevent discrimination as between producers within a field and to prevent unjust or unreasonable discrimination as to producers in different fields. The Ratable Take Rule is based on §§ 111.081-111.097 of the Texas Natural Resources Code, whose purpose is, in part, to protect the correlative rights of the interest owners in gas within a particular field.

The Ratable Take Rule requires producers, "initial purchasers", and "downstream purchasers" to prepare and file estimates of their actual demand for gas. These projections of market demand for gas are filed with the Railroad Commission to allocate a limited market demand and establish allowables for gas wells. The producer files a forecast (Form G-7) which shows the expected market demand for the gas, plus any gas which the producer expects to use. The market demand figure is supplied to the producer by the purchaser. The "first purchaser" files a nomination (Form T-3) showing its expected demand for the gas. The purchaser's nomination is based on projections received from downstream purchasers (either on a monthly or yearly basis, depending on the quantity of gas used by the downstream purchaser).

The Ratable Take Rule requires the purchaser to total its need for gas and ratably apportion its nominations, as reported on Form T-3. The specific provision of the Ratable Take Rule reads as follows:

> (5) The initial nominator of gas shall ratably apportion its nominations on Form T-3 and shall ratably apportion its actual take from all gas wells connected to its system so that takes from various gas producing properties shall be made without discrimination in favor of one producer or person as against another in the same field and without unjust or unreasonable discrimination as between fields. The following instructions shall apply to initial nominators in preparing nominations (Form T-3) and in taking gas from various sources of supply, and to the commission's staff in calculating allowables:
>
> > (A) Nominations shall be based on each well's deliverability as reflected by the well's Form G-10 on file with the commission. Actual

takes shall be based on the commission's assigned allowable for each well, with proper recognition for special allowable wells and limited capacity wells.

(B) First priority in the nomination for the purchase of gas shall be given to casinghead gas and second priority to Statewide Rule 49(b) gas so that gas produced in association with oil production shall not be wastefully vented and oil production shall not be unnecessarily curtailed. Under special circumstances, if market demand factors or temporary pipeline, compressor, or other operating difficulties result in less take from a Rule 49(b) gas well than its permitted allowable, then by special commission authority such underproduction may be carried forward and balanced as would be the case for any other gas well, provided, however, that no Statewide Rule 49(b) gas well may be allowed to overproduce its permitted allowable by a cumulative total in excess of one month's allowable.

(C) No gas well of any kind shall be given an allowable in excess of the capability to produce.

(D) Each new gas well operated under §3.28 (05.1.02.02.028) of this title (relating to Potential of Gas Wells To Be Ascertained and Reported) (Statewide Rule 28) and §3.29 (051.02.02.029) of this title (relating to Production of Gas Limited to 25% of Potential Capacity) (Statewide Rule 29) shall be assigned an allowable not to exceed the deliverability test volume as reported on Form G-10.

(E) Actual takes from a limited capacity well in a prorated field shall not be reduced to less than its capacity to produce unless all wells in the same field with capacity to produce exceeding that of the limited capacity wells have had their actual takes ratably reduced to the level of such limited capacity well. Texas Natural Resources Code §86.091 shall control the minimum takes from gas wells.

In practice, many purchasers total the expected market demand, and subtract a volumetric figure representing the total deliverability of gas produced from wells for which there are priorities (casing head, Rule 49(b) gas, etc.). The remaining market demand is then apportioned ratably among other wells, which are commonly referred to as "swing gas". This is done by dividing the remaining market demand by the total of the deliverability (as shown on Form G-10) for the swing gas wells to determine a percentage. The deliverability for each swing gas well is then multiplied by the percentage figure to determine the nomination for each swing gas well. Through this process, the purchaser has divided the expected market demand for swing gas equally among all the swing gas wells.

The Railroad Commission utilizes the nominations filed by the purchasers and the forecasts filed by the producers to determine the allowables for each well. If there is more than one well in a field and more than one purchaser, the allowables will not necessarily equal the expected market demand and often be a compromise. In other words, the allowable will balance the nominations within a field to protect the correlative rights of the interest owners. For example, if there are two wells in a field and two purchasers, one purchaser may nominate 100 percent of the deliverability of a well and the other purchaser may nominate 20 percent of the deliverability of the other well. The allowable established by the Railroad Commission may be set at 60 percent of the deliverability of the wells. In the process of setting allowables, the Commission takes into account various other factors, including, but not limited to, past over or under-production.

If each purchaser could take exactly the allowable from each producer, it would simplify matters. However, due to various reasons, the daily takes will be either over or under the allowables. Pursuant to the Ratable Take Rule, the purchaser must adjust its takes so that they are made without discrimination in favor of one producer or person as against another in the same field and without unjust or unreasonable discrimination as between fields. In general, many purchasers simply request the producers of swing gas to increase or lower the production rates of the swing wells by a percentage figure (usually of allowables) in order that the takes remain ratable.

MIDCON CORP.

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Frederick L. Scott
Vice President

Official Committee File

SENATE COMMITTEE ON
ENERGY AND NATURAL RESOURCES
RECEIVED
MAR 23 1983
WASHINGTON, D.C. 20510

March 23, 1983

Howard Useem
Committee on Energy and Natural Resources
306 Dirksen Senate Office Building
Washington, D.C. 20510

Dear Mr. Useem:

We received your questions on Monday, March 21, 1983 for our witness, Mr. O. C. Davis, before the Senate Energy and Natural Resources Committee Hearing. Unfortunately, we have not had sufficient time to respond to all of them but are enclosing some answers. We will be developing responses to Questions 1 and 3 from the Republican members and Questions 2 and 5 from the Minority members and we will forward them to you shortly.

If you desire further information, please call.

Very truly yours,

Frederick L. Scott

Frederick L. Scott

FLS:en
Enc.

cc: Betsy Moler

ANSWERS OF MR. O. C. DAVIS

CHAIRMAN OF THE BOARD OF MIDCON CORP.

TO QUESTIONS FROM VARIOUS REPUBLICAN MEMBERS OF THE COMMITTEE

Q.2. Please provide the Committee with your estimate of the amount by which gas prices would increase or decrease, both over the short-run and the long-run if S.615 is enacted.

A. Natural's present average purchased gas cost is $2.58 per MMBtu. We anticipate this cost to drop approximately 10 cents per MMBtu this spring primarily due to cutbacks of Canadian gas and marketing out of all gas contracts where we have this right. (A release describing these actions is attached.) If S.615 is enacted however, we believe our average purchased gas cost would increase to between $3.25 to $3.50. The major presure for such increase would come from the "old gas" producers seeking higher prices. We would expect them to exercise the market-out provision of the Bill effective January 1, 1985, the middle of the winter heating season and request higher prices. This increased cost to our consumers would not be offset by reductions in prices in Sections 102, 107, 108 and Canadian gas. Attached is an Exhibit A demonstrating that the 1985 impact on our customers using a price of $3.35 per Mcf is in excess of $340 million dollars. The major reason for this increase is the large volume of inexpensive "old gas" on our system. Between 1985 and 1990, we expect the annual cost impact to gradually decrease as our volumes of "old gas" decline. However, the total impact of S.615 could be as much as 1 billion dollars. Moreover, the significant increase in cost to our consumers in 1985 will adversely impact the marketability of our gas thereby endangering our sales to industrial consumers. If we lose significant volumes of industrial sales the residential gas heating consumer will be faced with higher gas prices in order to absorb the fixed costs of transmission and distribution presently being carried by industrial consumers.

In deriving the cost impact to our consumers we assumed the pass-through of the higher gas prices. However, S.615 has a provision regarding purchased gas pass-through which could prevent the pipeline from being able to charge these prices to our distribution company customers without a hearing before FERC. If we assume our average gas purchased cost prior to enactment to be $2.98 per Mcf the difference between the $3.35 per Mcf shown on our exhibit and $2.98 per Mcf would have to be approved, after the fact, by FERC. The cost exposure would amount to approximately $343 million. S.615 will not allow the recovery of these costs without lengthy proceedings before FERC . The Bill does not address the problems that a pipeline will incur when it must decide whether to risk non-recovery of the costs or elect not to purchase the gas and jeopardize service to its customers.

MIDCON CORP.
122 South Michigan Avenue
Chicago, Illinois 60603

News Release

Media Contact:
Robert Tietz
(312) 431-4361

March 16, 1983

FOR IMMEDIATE RELEASE

CHICAGO--MidCon Corp. today reported major steps taken by its interstate transmission subsidiary to reduce the cost of gas to its 49 distribution customers by about four per cent.

George L. Morrow, president of Natural Gas Pipeline Company of America, said that in recent weeks the Chicago-based firm has been able to reduce its takes of higher priced gas because of three factors: 1) a warmer than normal winter, 2) reduced industrial demand, and 3) the onset of spring with its lowered heating requirements.

While the numbers are not yet final, Morrow said he anticipates gas costs will be reduced "somewhere in the range of $85 million." Gas purchase costs make up about 75 per cent of Natural's total delivered cost of gas. Natural plans to file the reduction with the Federal Energy Regulatory Commission by the end of this month, and ask to make it retroactive to March 1. Some 12 million gas consumers in the Upper Midwest will benefit from the action.

- more -

Natural currently has one of the lowest average purchase gas costs of any pipeline in the country, at $2.58 per thousand cubic feet, because of its history of prudent purchasing policies, Morrow said. His company has implemented a number of steps to push this price even lower to retain its competitive posture with other fuels, he added. These include utilizing "market-out" clauses on certain gas purchase contracts, and cutting back on deliveries of higher priced Canadian gas.

"We are refusing to pay more than $3.35 per thousand cubic feet, including taxes, for gas under contracts which contain market-out provisions," the Chicago executive said. "This market-out price, which we believe to be the lowest in the industry, does not differentiate between type or depth of gas. Several categories are included, such as new gas, deep gas, and tight sands gas."

For new gas (Section 102 under the Natural Gas Policy Act), market-outs will reduce the cost of gas by up to 25 cents per thousand cubic feet and will stop further escalations now permitted by the NGPA. Market-outs are being exercised for the second time on the small quantities of deep and tight sands gas Natural has under contract. The current $3.35 market-out is 45 cents per thousand cubic feet below the earlier market-out price.

Canadian gas imports have been reduced substantially, too, Morrow pointed out. "We are currently not taking any gas from our largest Canadian supplier, and have reduced to the 50 per cent level (35 million cubic feet per day) our takes from the remaining Canadian supplier." Normally, deliveries from Canada to Natural's market area have been about 185 million cubic feet per day.

# # #

EXHIBIT A

	Estimated 1985 Supply Bcf	Estimated NGPA Price $/Mcf @ 12/84	Assumed 1985 Gas Price[1]	Change in Costs to Natural's Customers $MM [2]
Contract Rate	11.5	3.02	3.35	3.8
102(c)	234.1	4.25	3.35	(210.7)
102(d)	31.9	4.12	3.35	(24.6)
103	63.6	3.31	3.35	2.5
104	354.6	1.44	3.35	677.3
106	18.6	1.05	3.35	42.8
107	4.2	6.39	3.35	(12.8)
108	3.5	4.71	3.35	(4.8)
109	3.1	2.70	3.35	2.0
Pipeline Supplies	201.3	4.01	3.35[3]	(132.9)
Total Supply	926.4	2.98	3.35	342.8

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[1] Assumes current gas cap would be January 1983 Section 103 price including severance taxes and Btu adjustment or approximately $2.95. Assuming 6% inflation rate, 1985 gas cap would be approximately $3.35.

[2] Total price increase impact by catgory of gas. Reductions in Section 102 and 108 prices are more than offset by increases in old gas prices (primarily Section 104) which would ultimately be borne by Natural and its consumers.

[3] It is expected that imported gas and pipeline to pipeline sales would also go to market clearing price levels.

Q.4. Please provide the Committee with your estimate of the level of the gas cap if S.615 were enacted today and the amount by which the cap would reduce average purchased gas costs.

A. It is difficult at this time to estimate the level of the gas cap if S.615 were enacted today. Most interstate gas pipeline companies are not buying gas. Rather, many interstate gas pipeline companies are marketing-out on their high-cost gas to lower their purchased gas costs. In a few years as demand and supply become more in balance the producers and pipeline companies will be back in the market. Natural, estimates gas prices at that time will be approximately $3.35 per Mcf.

Q.5. Some witnesses appearing before the Committee have suggested that enactment of S.615 would bring about chaos in the gas market. Please provide the Committee with your assessment of the prospect of that occuring.

A. If the Administration's proposal, S.615, is enacted Natural believes that there is a 100% probability of chaos occurring during the middle of the 1984-85 heating season and thereafter for the following reasons.

a) Under S.615, as of January 1, 1985, both producers and Natural will be able to utilize the market-out provisions. S.615 provides for a 45-day notice period. On November 15, 1984, producers of low cost gas will give notice of their intent to market-out and, conversely, Natural will give notice of their intent to market-out on all of its few high-cost gas. We have over 2800 gas purchase contracts and almost 300 transportation contracts that could be affected by S.615. FERC estimates that there are over 30,000 gas purchase contracts which could be terminated under S.615. The industry will not have the manpower or the time to effectively renegotiate these contracts during the 45 days notice period. The result would be total mass confusion.

b) Natural would be faced with a "Hobson's choice"; either pay the higher prices demanded for the gas or lose it. If Natural paid higher prices it would face the impact of the limitations set out in the purchase gas cost pass-through provisions. If Natural does not pay the higher prices it's customers would face possible curtailment. Natural and its customers would not know the status of their costs and supply for some time.

c) Finally, if Natural is required to pay higher than market clearing prices in order to acquire adequate supplies industrial loads would be lost to alternate fuels. At the present time, our customers are advising us that the price of gas is already at market clearing levels. Any additional costs Natural will incur will drive the price of gas higher, resulting in further losses of industrial load. This will further increase the cost burden on the residential and commercial consumers in the middle of the 1984-85 heating season.

ANSWERS OF MR. O. C. DAVIS

CHAIRMAN OF THE BOARD OF MIDCON CORP.

TO QUESTIONS FROM VARIOUS REPUBLICAN MEMBERS OF THE COMMITTEE

Q.2. Please provide the Committee with your estimate of the amount by which gas prices would increase or decrease, both over the short-run and the long-run if S.615 is enacted.

A. Natural's present average purchased gas cost is $2.58 per MMBtu. We anticipate this cost to drop approximately 10 cents per MMBtu this spring primarily due to cutbacks of Canadian gas and marketing out of all gas contracts where we have this right. (A release describing these actions is attached.) If S.615 is enacted however, we believe our average purchased gas cost would increase to between $3.25 to $3.50. The major presure for such increase would come from the "old gas" producers seeking higher prices. We would expect them to exercise the market-out provision of the Bill effective January 1, 1985, the middle of the winter heating season and request higher prices. This increased cost to our consumers would not be offset by reductions in prices in Sections 102, 107, 108 and Canadian gas. Attached is an Exhibit A demonstrating that the 1985 impact on our customers using a price of $3.35 per Mcf is in excess of $340 million dollars. The major reason for this increase is the large volume of inexpensive "old gas" on our system. Between 1985 and 1990, we expect the annual cost impact to gradually decrease as our volumes of "old gas" decline. However, the total impact of S.615 could be as much as 1 billion dollars. Moreover, the significant increase in cost to our consumers in 1985 will adversely impact the marketability of our gas thereby endangering our sales to industrial consumers. If we lose significant volumes of industrial sales the residential gas heating consumer will be faced with higher gas prices in order to absorb the fixed costs of transmission and distribution presently being carried by industrial consumers.

In deriving the cost impact to our consumers we assumed the pass-through of the higher gas prices. However, S.615 has a provision regarding purchased gas pass-through which could prevent the pipeline from being able to charge these prices to our distribution company customers without a hearing before FERC. If we assume our average gas purchased cost prior to enactment to be $2.98 per Mcf the difference between the $3.35 per Mcf shown on our exhibit and $2.98 per Mcf would have to be approved, after the fact, by FERC. The cost exposure would amount to approximately $343 million. S.615 will not allow the recovery of these costs without lengthy proceedings before FERC . The Bill does not address the problems that a pipeline will incur when it must decide whether to risk non-recovery of the costs or elect not to purchase the gas and jeopardize service to its customers.

MIDCON CORP.
122 South Michigan Avenue
Chicago, Illinois 60603

News Release

Media Contact:
Robert Tietz
(312) 431-4361

March 16, 1983

FOR IMMEDIATE RELEASE

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George L. Morrow, president of Natural Gas Pipeline Company of America, said that in recent weeks the Chicago-based firm has been able to reduce its takes of higher priced gas because of three factors: 1) a warmer than normal winter, 2) reduced industrial demand, and 3) the onset of spring with its lowered heating requirements.

While the numbers are not yet final, Morrow said he anticipates gas costs will be reduced "somewhere in the range of $85 million." Gas purchase costs make up about 75 per cent of Natural's total delivered cost of gas. Natural plans to file the reduction with the Federal Energy Regulatory Commission by the end of this month, and ask to make it retroactive to March 1. Some 12 million gas consumers in the Upper Midwest will benefit from the action.

- more -

Natural currently has one of the lowest average purchase gas costs of any pipeline in the country, at $2.58 per thousand cubic feet, because of its history of prudent purchasing policies, Morrow said. His company has implemented a number of steps to push this price even lower to retain its competitive posture with other fuels, he added. These include utilizing "market-out" clauses on certain gas purchase contracts, and cutting back on deliveries of higher priced Canadian gas.

"We are refusing to pay more than $3.35 per thousand cubic feet, including taxes, for gas under contracts which contain market-out provisions," the Chicago executive said. "This market-out price, which we believe to be the lowest in the industry, does not differentiate between type or depth of gas. Several categories are included, such as new gas, deep gas, and tight sands gas."

For new gas (Section 102 under the Natural Gas Policy Act), market-outs will reduce the cost of gas by up to 25 cents per thousand cubic feet and will stop further escalations now permitted by the NGPA. Market-outs are being exercised for the second time on the small quantities of deep and tight sands gas Natural has under contract. The current $3.35 market-out is 45 cents per thousand cubic feet below the earlier market-out price.

Canadian gas imports have been reduced substantially, too, Morrow pointed out. "We are currently not taking any gas from our largest Canadian supplier, and have reduced to the 50 per cent level (35 million cubic feet per day) our takes from the remaining Canadian supplier." Normally, deliveries from Canada to Natural's market area have been about 185 million cubic feet per day.

# # #

EXHIBIT A

	Estimated 1985 Supply Bcf	Estimated NGPA Price $/Mcf @ 12/84	Assumed 1985 Gas Price 1/	Change in Costs to Natural's Customers $MM 2/
Contract Rate	11.5	3.02	3.35	3.8
102(c)	234.1	4.25	3.35	(210.7)
102(d)	31.9	4.12	3.35	(24.6)
103	63.6	3.31	3.35	2.5
104	354.6	1.44	3.35	677.3
106	18.6	1.05	3.35	42.8
107	4.2	6.39	3.35	(12.8)
108	3.5	4.71	3.35	(4.8)
109	3.1	2.70	3.35	2.0
Pipeline Supplies	201.3	4.01	3.35 3/	(132.9)
Total Supply	926.4	2.98	3.35	342.8

1/ Assumes current gas cap would be January 1983 Section 103 price including severance taxes and Btu adjustment or approximately $2.95. Assuming 6% inflation rate, 1985 gas cap would be approximately $3.35.

2/ Total price increase impact by catgory of gas. Reductions in Section 102 and 108 prices are more than offset by increases in old gas prices (primarily Section 104) which would ultimately be borne by Natural and its consumers.

3/ It is expected that imported gas and pipeline to pipeline sales would also go to market clearing price levels.

Q.4. Please provide the Committee with your estimate of the level of the gas cap if S.615 were enacted today and the amount by which the cap would reduce average purchased gas costs.

A. It is difficult at this time to estimate the level of the gas cap if S.615 were enacted today. Most interstate gas pipeline companies are not buying gas. Rather, many interstate gas pipeline companies are marketing-out on their high-cost gas to lower their purchased gas costs. In a few years as demand and supply become more in balance the producers and pipeline companies will be back in the market. Natural, estimates gas prices at that time will be approximately $3.35 per Mcf.

Q.5. Some witnesses appearing before the Committee have suggested that enactment of S.615 would bring about chaos in the gas market. Please provide the Committee with your assessment of the prospect of that occuring.

A. If the Administration's proposal, S.615, is enacted Natural believes that there is a 100% probability of chaos occurring during the middle of the 1984-85 heating season and thereafter for the following reasons.

a) Under S.615, as of January 1, 1985, both producers and Natural will be able to utilize the market-out provisions. S.615 provides for a 45-day notice period. On November 15, 1984, producers of low cost gas will give notice of their intent to market-out and, conversely, Natural will give notice of their intent to market-out on all of its few high-cost gas. We have over 2800 gas purchase contracts and almost 300 transportation contracts that could be affected by S.615. FERC estimates that there are over 30,000 gas purchase contracts which could be terminated under S.615. The industry will not have the manpower or the time to effectively renegotiate these contracts during the 45 days notice period. The result would be total mass confusion.

b) Natural would be faced with a "Hobson's choice"; either pay the higher prices demanded for the gas or lose it. If Natural paid higher prices it would face the impact of the limitations set out in the purchase gas cost pass-through provisions. If Natural does not pay the higher prices it's customers would face possible curtailment. Natural and its customers would not know the status of their costs and supply for some time.

c) Finally, if Natural is required to pay higher than market clearing prices in order to acquire adequate supplies industrial loads would be lost to alternate fuels. At the present time, our customers are advising us that the price of gas is already at market clearing levels. Any additional costs Natural will incur will drive the price of gas higher, resulting in further losses of industrial load. This will further increase the cost burden on the residential and commercial consumers in the middle of the 1984-85 heating season.

ANSWERS OF MR. O. C. DAVIS

CHAIRMAN OF THE BOARD

MIDCON CORP.

TO

MINORITY MEMBERS' ADDITIONAL QUESTIONS

FOR

NATURAL GAS HEARING RECORD

WITNESSES APPEARING MARCH 12, 1983

QUESTIONS FOR PANEL TWO

Q.1. Do you support any of the bills pending before the Committee on Energy and Natural Resources? If so, please indicate which one(s).

A. We have problems with the various Bills pending before the Committee and we would prefer to let the existing law, NGPA, to run its course rather than accept these proposals. However, S.689 would require the least amendments to make it acceptable and workable.

Q.3. If the amendments you support are not adopted, and if you personally had to vote up or down on S.615, would you support it or would you support a continuation of the existing law?

A. I do not support S.615 and would prefer to let the existing legislation (NGPA) run.

Q.4. If controls are removed in the manner proposed by the Administration, or in any other manner, will prices rise or fall? By how much? Why?

A. Prices to our consumers in the Midwest will rise. To demonstrate this I am attaching Exhibit A showing the increase in prices we expect if the gas is $3.35 per Mcf in 1985. Our consumers would pay in excess of $340 million dollars in increased cost in 1985 over what they would have paid under the NGPA. The reason for this increase is the impact of higher prices for "old gas" (Sections 104 and 106). The Administration Bill, S.615, provides that either party can market-out of a contract on January 1, 1985. Producers of old gas will market-out seeking higher prices. Natural will market-out high cost gas contracts. Because we now have, and in 1985 expect to have, much more low priced gas than high priced gas , it will not be possible to trade off on old gas and new gas equally. Consequently, we believe increases in cost will outweigh reductions.

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1/ Assumes current gas cap would be January 1983 Section 103 price including severance taxes and Btu adjustment or approximately $2.95. Assuming 6% inflation rate, 1985 gas cap would be approximately $3.35.

2/ Total price increase impact by catgory of gas. Reductions in Section 102 and 108 prices are more than offset by increases in old gas prices (primarily Section 104) which would ultimately be borne by Natural and its consumers.

3/ It is expected that imported gas and pipeline to pipeline sales would also go to market clearing price levels.

Q.6. Can you explain specifically and in detail why prices are not falling now?

A. Most pipelines, Natural included, are locked into contracts executed many years ago under different supply-demand conditions that only operate with upward price changes. Only in the past several years have contracts included market-out provisions which are intended to make gas prices sensitive to end use market conditions. This year demands for gas in Natural's markets have declined significantly, brought about by reduced industrial demand and fuel switching, a warmer than normal winter, declining alternate fuel prices and conservation. To attempt to reverse this declining market demand and to offset the increases in its costs of gas, as it replaces low cost gas with higher cost new gas, Natural has recently announced actions to reduce its cost of purchased gas. Attached is a release recently issued by Natural which explains the action it has taken to reduce the cost of purchased gas. These actions will result in a reduction of approximately $85 million in Natural's purchased gas costs.

As can be seen from Exhibit B the major cost component in our city gate rate is purchased gas. This represents approximately 80% of our rate. Therefore, if prices are to drop purchased gas costs must be reduced. In order to achieve this, Natural has attempted to negotiate contract modifications with its producers to result in lower prices to the consumer. Producers have refused to renegotiate existing contracts to delete indefinite price escalation clauses or to include provisions that will make well head prices sensitive to market conditions at the burner tip. The refusal of producers to renegotiate contracts is the major factor keeping prices at above market levels.

EXHIBIT B

NATURAL GAS PIPELINE COMPANY OF AMERICA

Average City Gate Prices

	Cents Per MMBtu		
	Total	Gas Costs	Non-Gas Costs
Fiscal 1978	124.4¢	87.7¢	36.7¢
Fiscal 1979	162.5¢	119.1¢	43.4¢
Fiscal 1980	218.9¢	173.1¢	45.8¢
Fiscal 1981	250.8¢	203.4¢	47.4¢
Fiscal 1982	275.0¢	227.9¢	47.1¢

MIDCON CORP.
122 South Michigan Avenue
Chicago, Illinois 60603

News Release

Media Contact:
Robert Tietz
(312) 431-4361

March 16, 1983

FOR IMMEDIATE RELEASE

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- more -

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Canadian gas imports have been reduced substantially, too, Morrow pointed out. "We are currently not taking any gas from our largest Canadian supplier, and have reduced to the 50 per cent level (35 million cubic feet per day) our takes from the remaining Canadian supplier." Normally, deliveries from Canada to Natural's market area have been about 185 million cubic feet per day.

# # #

Natural has publicly announced its policy of transporting gas for others. The Commission allows only an incentive rate of one cent per Mcf for such transportation. This rate is a barrier to encouraging the transportation of gas to prospective purchasers. S.615 recognizes the value of such transportation when it proposes an incentive rate of five cents per Mcf above transportation costs.

Another barrier to lower consumer costs is the Commission's Order 93 and 93A. The Commission changed the method of measurement for NGPA ceiling prices from the industry-wide "saturated" standard to a "dry" basis, on the grounds that the NGPA mandated the change. The change made retroactively and prospectively effective has resulted in hundreds of millions of dollars a year in increased costs to consumers.

The Commission, in January, 1983, issued its Order 94, et al., on production-related costs. This order permits producers to collect certain allowances in addition to the NGPA price. The Commission estimated this order would cost consumers three billion dollars a year. Thus, it is apparent that removal of this barrier would permit lower consumer costs.

Q.7. Giving a broad interpretation to the Natural Gas Act and the Natural Gas Policy Act, what authority might the FERC have to remove any barriers that exist at the present time to the fall in prices? Could its authority under Sec. 601(c) of the NGPA, concerning limitations on passthroughs in the event of "fraud, abuse, or similar grounds," be interpreted to provide such authority? Could its rulemaking authority under Sec. 501(a) of the NGPA be used to rectify the situation?

A. Natural has several applications pending with the Commission to make off system sales. The Commission has not acted on applications pending the issuance of a policy statement. The failure of the Commission to approve these sales has prevented a reduction in the cost of gas to Natural's customers.

The off system sales proposed by Natural will result in a reduction of Natural's take or pay obligations and, when passed through to its customers will result in a reduced cost of five cents per mcf. An expansion of Natural's ability to enter into off system sales will result in an increased savings to consumers.

Additionally, Natural's proposed sales price for off system sales is lower than the cost of alternative supplies to its prospective customers. Thus, the failure of the Commission to expeditiously act on off system sales preventing the free movement of gas supply constitutes a barrier to reduced prices for Natural's prospective off system purchasers of its gas supply; thus forcing them to pay higher prices for their supply.

QUESTIONS FROM VARIOUS REPUBLICAN MEMBERS OF THE COMMITTEE

1. Please provide the Committee with the specific legislative language necessary to implement those changes to the Administration's bill, S. 615, that you identified in your oral and written testimony as being necessary. Also please provide the Committee a justification for each of your recommended changes.

2. Please provide the Committee with your estimate of the amount by which gas prices would increase or decrease, both over the short-run and over the long-run if S. 615 is enacted.

3. Please provide the Committee with your estimate of the amount by which gas supplies and gas reserves would increase or decrease, both over the short-run and over the long-run, if S. 615 is enacted.

4. Please provide the Committee with your estimate of the level of the gas cap if S. 615 were enacted today and the amount by which the cap would reduce average purchased gas costs.

5. Some witnesses appearing before the Committee have suggested that enactment of S. 615 would bring about chaos in the gas market. Please provide the Committee with your assessment of the prospect of that occurring.

MINORITY MEMBERS' ADDITIONAL QUESTIONS FOR

NATURAL GAS HEARING RECORD

WITNESSES APPEARING MARCH 12, 1983

QUESTIONS FOR PANEL THREE

1. Do you support any of the bills pending before the Committee on Energy and Natural Resources? If so, please indicate which one(s).

2. Please provide the Committee with specific statutory language for any amendments you would like to see adopted if the Committee were to use S. 615 as a mark-up vehicle for natural gas legislation.

3. If the amendments you support are not adopted, and if you personally had to vote up or down on S. 615, would you support it or would you support a continuation of the existing law?

4. If controls are removed in the manner proposed by the Administration, or in any other manner, will prices rise or fall? By how much? Why?

5. If prices fall, how much will production fall?

6. Can you explain specifically and in detail why prices are not falling now?

7. Giving a broad interpretation to the Natural Gas Act and the Natural Gas Policy Act, what authority might the FERC have to remove any barriers that exist at the present time to the fall in prices? Could its authority under Sec. 601(c) of the NGPA, concerning limitations on passthroughs in the event of "fraud, abuse, or similar grounds", be interpreted to provide such authority? Could its rulemaking authority under Sec. 501(a) of the NGPA be used to rectify the situation?

ARCO Oil and Gas Company
Post Office Box 2819
Dallas, Texas 75221
Telephone 214 651 4206

Stuart C. Mut
Senior Vice President

March 29, 1983

The Honorable James A. McClure
Chairman, Committee on Energy and Natural Resources
United States Senate
Washington, D.C. 20510

Dear Senator:

In accordance with your request of March 16, 1983, I have attached hereto my responses to the questions submitted by various members of your committee.

Atlantic Richfield fully supports the basic concepts of S.615 and we feel that with some modest modifications it is a workable vehicle for moving toward a market controlled environment for natural gas.

If I can be of any further assistance, please advise.

Very truly yours,

Stuart C. Mut

SCM:pap

Attachment

Questions from Majority Members of the Committee

Question #1: Please provide the Committee with the specific legislative language necessary to implement those changes to the administration's bill, S.615, that you identified in your oral and written testimony as being necessary. Also, please provide the Committee a justification for each of your recommended changes.

Answer: We suggest that S.615 be amended as follows:

"SEC. 111. LIMITATION ON CEILING PRICES FOR CERTAIN NATURAL GAS

(a) GENERAL RULE. -- Except as provided in Section 121 of this Act, beginning on the date of enactment of this section, the maximum lawful price of any first sale of natural gas subject to this subtitle shall not exceed the lower of the applicable price as calculated pursuant to sections 102 through 106, 108, and 109 or the gas cap price, if published, for the month during which the gas is delivered; provided that the applicable maximum lawful price for any first sale of natural gas shall not be less than the applicable maximum lawful price for the month of January, 1982 published by the Commission in accordance with the section 101(b)(6) of this subtitle." (Changes indicated by underlining.)

"(e) FILING REQUIREMENT. -- A purchaser of natural gas subject to a first sale contract executed or amended on or after the the date of the enactment of the Natural Gas Consumer Regulatory Reform Amendments of 1983 shall file with the Commission within five days of the date on which the contract is executed or amended --"

Subsection (e) is amended to delete renegotiated contracts. It is Atlantic Richfield's assessment that the inclusion of renegotiated contract prices in the gas cap calculation creates dangers for both producers and consumers. Renegotiated contracts covering low price gas would not likely be escalated to a level approaching free market prices, and in fact might be quite low relative to so-called market clearing prices. Given this situation, it is possible that the gas cap would be set at levels substantially below the current price levels for alternative fuels, and would result in substantial rollbacks of prices now being received for flowing gas in the NGPA categories 102, 103, and 108; prices that the Congress determined to be just and reasonable less than five years ago.

Recall that these prices did, in fact, induce the successful exploration and development of badly needed new gas supply and brought an end to the shortages experienced in the mid-70's. A price rollback now would affect the ability of the producing industry to fund a continuing exploration and development effort sufficient to maintain adequate supplies. It is apparent that most of the impact of the rollback will fall on gas supplies brought into the market since the NGPA was enacted, specifically Section 102 and 103 gas. Nationwide, these categories now supply more than one-third of domestic production.

If this occurs, the reduction of internally generated cash flow in producer companies will be substantial. When this is coupled with the proposed reduction in take-or-pay obligation contemplated by the act, the money avails to support exploration and development activities will be seriously diminished. Drilling activity in this country has already declined by over 50% from the peak reached at year-end 1981 and drilling for gas, particularly in the independent sector, appears to have decreased by an even greater percentage. If we adopt additional measures which would have the effect of decreasing gas drilling ever further, it is easily predictable that we will soon be back into a condition of shortage and curtailment, and all the problems that it would bring.

The foregoing discussion establishes that valid justification exists for deleting renegotiated contracts from the gas cap.

Subsection (a) is amended to set a floor on the gas cap based on NGPA prices for January, 1982. As discussed with respect to the deletion of renegotiated contracts in the gas cap, a drastic rollback in existing prices will materially impact exploration and development efforts. Additionally, it should be remembered that investment decisions and loan obligations in the billions of dollars were made in the expectation and belief that governmentally set prices would not be arbitrarily reduced. Considering the current "over-supply" in the gas market, new gas sales are being made in a buyer's market. The gas cap, even when calculated on the basis of only new contracts, could still be unduly low given the current over-supply, market disruption and economic uncertainty. To satisfy the producers' legitimate concerns about a substantial price rollback, Atlantic Richfield recommends a floor on the cap based on NGPA prices for January, 1982.

Such a floor would provide producers with a measure of certainty and would still allow regulated prices to be rolled back to the lowest level advocated by proponents of price freeze/rollback legislation.

Question #2: Please provide the Committee with your estimate of the amount by which gas prices would increase or decrease, both over the short run and over the long run if S.615 is enacted.

Answer: In the period following the date of enactment of S.615 through 1/1/86, the date of full deregulation, the weighted average wellhead price of gas from South 48 state sources is expected to decrease in constant 1983 dollars from the current levels. The amount of the decrease would, of course, be partially dependent upon the level of the gas cap over that period of time. Our preliminary studies indicate that the gas cap, as defined in S.615, could well be in the range of $2.40 to $2.90 (in constant 1983 dollars). Secretary Hodel has estimated a gas cap level of approximately $2.93. Our gas contract people have constructed a plausible scenario in which the level would settle in the area of $2.60. In any event, it appears likely that the gas cap mechanism will precipitate a significant rollback of some regulated prices in the interim period.

The overall weighted average cost of gas will be influenced by this rollback, by the continuing change in mix of old and new gas, by the effect of any changes in permissible take-or-pay levels, by the effects of contract renegotiations, and by the prices that are offered for new supplies of gas. And all of this must, practically speaking, fit into the pass-through limitation provision.

Our estimate of the operation of all these factors on Atlantic Richfield's particular mix of gas sales points to a reduction of the order of 30¢ per Mcf in the period immediately following enactment, (first six months) followed by a gradual rise toward the "WACOG plus inflation" level permitted in the pass-through limitation provision, or to a lower level determined by market forces.

After 1/1/86, we anticipate that the weighted average price of gas at the wellhead would be controlled by market forces at its commodity value vis-a-vis competitive fuels. This value would rise and fall with market conditions.

Question #3: Please provide the Committee with your estimate of the amount by which gas supplies and gas reserves would increase or decrease both over the short run and over the long run if S.615 is enacted.

Answer: We assume that the term "gas supplies" means the volume of gas available for delivery to pipelines from South 48 sources, and that the term "gas reserves" means economically recoverable South 48 reserves of gas. The current rig count of 2067 rigs is compatible with a reserve addition level of approximately 10 Tcf per year. If the gas cap and PGA pass-through levels established by S.615 as now drafted result in a drastic rollback in gas revenues and an inability of many pipelines to offer incentive prices for new gas commitments, we estimate that rig count (at least that portion devoted to gas drilling) would continue to decline or, at best, hold level in the near term. At the 10 Tcf per year level of reserve additions, we estimate that gas deliverability would drop from today's 19.7 Tcf per year to 17.5 Tcf per year by the winter of 1985-86, the gas deliverability bubble would disappear, and shortages would occur on some pipeline systems. The Reserve/Production ratio would continue to erode as yearly production would exceed reserve additions.

If, on the other hand, the gas cap level does not decline below $3.00 and the PGA pass-through limitation operates so as to permit pipelines to purchase new gas supplies at approximately the $3.00 level, or perhaps a bit higher, then we would expect the rig count to increase above the current level. We estimate that these conditions might support a rig count of approximately

3,000 which would be compatible with reserve additions of approximately 15 Tcf per year. Under these conditions, the gas deliverability bubble would still substantially disappear by 1986 but the larger reserve additions would be sufficient to enable projected demand for deliverability from lower 48 sources to be satisfied. Under the free market conditions prevailing after 1/1/86, we anticipate that exploration activities would continue to maintain pace with projected demand and the Reserve/Production ratio would stabilize.

Question #4: Please provide the Committee with your estimate of the level of the gas cap if S.615 were enacted today and the amount by which the cap would reduce average purchased gas cost.

Answer: Please refer to the answer to Question #2 above.

Question #5: Some witnesses appearing before the Committee have suggested that enactment of S.615 would bring about chaos in the gas market. Please provide the Committee with your assessment of the prospect of that occurring.

Answer: The gas market at the present time is in a period of turmoil and adjustment. In our view, S.615 provides a vehicle for market ordering rather than a prescription for chaos.

We presume the comment refers to the period in which contracts may be terminated by either producer or purchaser. This does indeed set up a condition unlike any the industry has previously experienced and it is not clear at this time just how the parties will handle the situation. However, it is clearly in the interests of both buyer and seller that equitable and livable agreements be reached. In such a situation, experience suggests that the parties will reach suitable accommodations responsive to the conditions in the market existing at that time.

Questions from Minority Members of the Committee

Question #1: Do you support any of the bills pending before the Committee on energy and natural resources? If so, please indicate which one(s).

Answer: Atlantic Richfield fully supports the concept of S.615 and believes that, with some modest modifications, it is a workable vehicle for moving towards a market controlled environment.

Question #2: Please provide the Committee with specific statutory language for any amendments you would like to see adopted if the Committee were to use S.615 as a mark-up vehicle for natural gas legislation.

Answer: Please see the answer to Question #1 submitted by the various majority members of the Committee.

Question #3: If the amendments you support are not adopted and if you personally had to vote up or down on S.615, would you support it or would you support a continuation of the existing law?

Answer: It is difficult to see that a simple yes or no answer on S.615 as presently written would be helpful to the Committee, as it is quite unlikely that the bill will be reported out of Committee in exactly its present form. Even Secretary Hodel has indicated a willingness to modify details of the proposal so long as the substance of the bill is retained.

As pointed out in our previous testimony and in our suggested amendments, we feel S.615 can and should be improved in ways to promote a smooth and orderly transition to a free market for gas. Even so, as it stands, it is the only legislative initiative introduced so far that takes a comprehensive approach to moving towards a free market situation. Thus, we would support S.615 in preference to a continuation under NGPA.

Question #4: If controls are removed in the manner proposed by the administration, or in any other manner, will prices rise or fall? By how much? Why?

Answer: The response to Question #2 submitted by majority members of the Committee depicts our estimates of price response to S.615. As to "any other manner" of decontrol, the GAO has recently made a study of alternative methods of decontrol and concluded that, on the basis of economic and market forces alone, there appears to be little difference between immediate decontrol of all gas and a continuation of the NGPA. We believe that the weighted average price of gas is at, or near, market clearing levels today and that such levels will not be significantly increased under any deregulation scenario until market conditions improve.

Question #5: If prices fall how much will production fall?

Answer: If prices fall somewhat from present levels, it is likely that gas production and consumption will increase, not decrease, as some industrial load is recaptured from alternate fuels.

On the other hand, we anticipate that if prices fall, reserve additions from exploration will diminish, leading to a loss of deliverability that could become critical by 1986. Please refer to the answer to the majority members' question #3 for a more complete discussion of this issue.

Question #6: Can you explain specifically and in detail why prices are not falling now?

Answer: Wellhead prices for new gas commitments produced from south 48 sources are falling now. As the testimony before this Committee by Atlantic Richfield and others reflects, new gas supplies of both regulated and unregulated gas are entering the market at prices well below those fixed for Section 102 gas, and such new contracts are being entered into subject to low take-or-pay percentages. The reduction in wellhead price of new gas commitments which has occurred in the last several months may not yet be reflected in consumer rates due to regulatory lag, but consumer prices will soon reflect such reduction.

In considering the weighted average wellhead price of all gas produced from south 48 sources, the answer is more complex.

Under current long term contracts tied to maximum lawful prices under the NGPA, monthly increases to reflect inflation are almost universally prevalent. Also, the change in mix between old underpriced gas and newer higher priced gas (known as "category-creep") will continue to occur. There may also be an effect from the current take-or-pay problems experienced by the pipelines which cause pipelines to take higher price gas in order to minimize take-or-pay obligations. These factors tend to cause prices to increase. On the other hand, "market out" actions have resulted in sizable reductions in the price paid for some categories of high price gas, which reductions are beginning to be reflected in some pipelines' weighted average cost of gas.

Question #7: Giving a broad interpretation to the Natural Gas Act and the Natural Gas Policy Act, what authority might the FERC have to remove any barriers that exist at the present time to the fall in prices? Could its authority under Section 601(c) of the NGPA concerning limitations on pass-throughs in the event of "fraud, abuse, or similar grounds", be interpreted to provide such authority? Could its rule-making authority under Section 501(a) of the NGPA be used to rectify the situation?

Answer: The FERC has no authority beyond that given to it by statute. Its decisions are subject to court review and any action found to exceed its statutory authority would be set aside.

Section 601(b) of NGPA provides that any amount paid in any first sale of natural gas shall be deemed to be just and reasonable if such amount does not exceed the applicable maximum lawful price, or if there is no applicable maximum lawful price. Section 601(c) guarantees the pass-through of any amount paid in any sale of natural gas, if such amount is deemed to be just and reasonable under Section 601(b), except to the extent the Commission determines that the amount paid was excessive due to fraud, abuse or similar grounds. The legislative history clearly sets forth the intent of Congress that the guaranteed pass-through provision was designed to prevent "back door" or indirect regulation by the Commission imposing its own view of just and reasonable prices, instead of accepting the determination of Congress. Thus, the Commission would have no legal power to subvert the congressional intent by purporting to utilize the "fraud and abuse" language to prevent the pass-through of prices deemed just and reasonable by Congress.

Section 501(a) gives the Commission the authority to "prescribe, issue, amend and rescind such rules and orders as it may find necessary or appropriate to carry out its functions under this Act." Thus, the Commission would have no legal authority to institute a rule-making design to subvert congressional intent by reducing, directly or indirectly, prices deemed to be just and reasonable by the Congress.

ARCO Oil and Gas Company
Post Office Box 2819
Dallas, Texas 75221
Telephone 214 651 4206
Stuart C. Mut
Senior Vice President

SENATE COMMITTEE ON
ENERGY AND NATURAL RESOURCES
RECEIVED
MAR 23 19
WASHINGTON, D.C. 20510

March 17, 1983

The Honorable Wendell H. Ford
U.S. Senate
Washington, D.C. 20510

SUBJECT: Hearings on Natural Gas Consumer Regulatory Reform Amendments of 1983, S.615

Dear Senator Ford:

During the course of my testimony before the Committee on Energy and Natural Resources on the afternoon of March 12, 1983, you asked that I respond in writing to several questions relating to take or pay provisions of Atlantic Richfield Company's Gas Sales contracts. I have responded to your questions in the order that they were posed and have restated the questions as I understood them.

Q. What percent of ARCO's contracts have take or pay clauses?

A. Approximately 82%. Essentially all of the remainder of our contracts cover the sale of oil well gas to gas processing plants, or the sale of residue gas from these plants. These contracts generally provide that the purchaser take whatever amount of gas is available from time to time.

Q. As to those contracts with take or pay provisions, what percent of ARCO's gas sales volume do those represent?

A. Based on projected 1983 sales, approximately 76%. (Same understanding as to oil well gas and residue gas contracts as in my above answer.)

As I'm sure you are aware, payments made under contract take or pay provisions are actually prepayments for gas to be delivered at a later date. Since there seems to be much controversy and some level of misunderstanding about these provisions, I have attached for your possible interest a brief commentary on the rationale for and the benefits deriving from the inclusion of take or pay clauses in the gas sales contract.

I appreciate the opportunity to present my Company's views on S.615 and the current natural gas situation. A good and balanced resolution of the current problems is, I firmly believe, crucial to the Nation's wellbeing. If I or any of my staff can be of further assistance to you in your deliberations on this issue, please contact me.

Very truly yours,

S. C. Mut

SCM:nw
Attach.

cc: The Honorable James A. McClure w/attach.

Take or Pay Contract Provisions

Take or pay provisions in gas sales contracts came in for much comment during the recent hearings on S.615 before the Senate Committee on Energy and Natural Resources. Several witnesses or Committee members suggested that the negotiated take levels were often set too high, and some suggested that any such contract provision was inappropriate.

Take or pay provisions (actually take or pre-pay) benefit both the producer and the pipeline and its customers. For the producer they provide an assured level of income to pay out his investments and to cover his operating costs. Often this guaranteed income from producing wells provides the collateral against which to borrow money for additional drilling. These provisions are the producer's only protection against the possibility that a pipeline could tie up his gas reserves on a long-term contract and then arbitrarily limit the production rate to very low levels.

For the pipeline take or pay provides a contract mechanism which permits the pipeline to secure long-term commitments of reserves, thereby establishing security of supply to its customers. It also provides a mechanism (in addition to storage reservoirs) that allows the pipeline to adjust its delivered volumes to the changing demands of its consumers.

It is true that some pipelines are today facing very large potential take or pay obligations. These are a direct result of the shortage situation of the mid-1970's. With prices regulated for most new gas, competition among pipelines for new supply was largely on the basis of guaranteed rates of take, and these reached high levels, often 85 or 90%. These contracts are now posing real problems, but on the plus side, these high take levels provided a very powerful stimulus to exploration and development activity, a significant factor leading to our current condition of adequate supply.

There is a need somehow to relieve the difficulties in the present situation, but this should not be accomplished at the expense of limiting the effectiveness of a very important element of gas sales contracting.

W. J. (BILL) MURRAY, JR.
PETROLEUM ENGINEER
1906 SCENIC DRIVE
AUSTIN, TEXAS 78703
(512) 477-2120

March 26, 1983

Howard Useem, Committee Staff
Committee on Energy and Natural Resources
James A. McClure, Chairman
United States Senate
Washington, D. C.

Dear Mr. Useem:

Because I have been out of town for some period of time, I did not receive your communication of March 16th requesting my response by March 23 to certain additional questions. Regretfully, the deadline for response has already passed, but fortunately I feel that none of the questions would be applicable to me. But for whatever use, and realizing that this is neither timely filed nor particularly pertinent to the questions asked, I will submit the following general statements:

Questions from Republican Members of the Committee

1. I advocated no specific changes to the Administration's bill in my testimony and did not attempt to interpret existing language. My purpose was largely to provide data on declining gas deliverability and to caution the committee against taking any action which might deter continued exploration and development of new gas production.

2. My testimony, as above stated, dealt largely with supply and not on price.

3. I expressed strong concern that rolling back the price of newly discovered Sec. 102 gas would decrease supply, but I did not attempt to quantify the reduction.

4. I possess no independent data with which to quantify the level of the gas cap. I heard Chairman Butler's quantification of the gas cap

level and I have no contrary opinion and this number is also in general accord with what I have heard from industry. I can, however, affirm that there exists considerable uncertainty among gas producers as to the specific level of the gas cap and this uncertainty is also contributing to the decline in exploration and development of natural gas.

5. I have heard a number of gas explorationists make the same statement as apparently was made by witnesses whom I did not hear. I understand and agree with the reasons which they have expressed.

Minority Members' Additional Questions:

1. I am not intimately informed; therefore, have not taken a position relative to pending bills. I have deep concern over what I believe to be a temporary overstated surplus and a rapidly declining supply. If the committee believed my data and concerns to have credibility, I would hope they would take this into consideration in voting on various pending bills, but that their interpretation of the language of these bills would be much superior to mine.

2. Answered above.

3. Answered above.

4. No brief answer is possible and my testimony did not specifically relate to price. My judgment, but not claimed as a professional engineer's expert opinion, is that prices would have a moderate drop and then rise more rapidly as a result of declining supply.

5. Answered above.

6. This was not covered in my testimony and I will not now attempt an adequate statement, but prices are now falling. Many companies have exercised their market out; many companies are declining to take high cost gas; many companies are renegotiating contracts. I would assume that these matters were covered in more detail by other witnesses.

7. My testimony did not cover these questions and as an engineer I would doubt the propriety of commenting on legal authority. However, I do strongly believe that take-or-pay provisions in both inter and intrastate contracts can be greatly mitigated, if not entirely removed, through the issuance of ratable take orders by the various state conservation bodies and by the Interior Department forOCS gas. Much of my testimony dealt with this aspect and I feel it unnecessary and inappropriate to repeat herein.

If requested, however, I would be prepared to discuss at length the benefits of ratable take orders in assuring a dependable supply to meet fluctuating demand and also to encourage continued exploration and development in times oftemporary surplus.

I could also specifically cite how the ratable take orders in Texas (although they do need improving and I am now chairing an industry committee to make recommendations for such improvements) have thus far prevented any significant collection of payment for gas not taken.

Sincerely yours,

W. J. Murray, Jr.

WJM:eb

QUESTIONS FROM VARIOUS REPUBLICAN MEMBERS OF THE COMMITTEE

1. Please provide the Committee with the specific legislative language necessary to implement those changes to the Administration's bill, S. 615, that you identified in your oral and written testimony as being necessary. Also please provide the Committee a justification for each of your recommended changes.

2. Please provide the Committee with your estimate of the amount by which gas prices would increase or decrease, both over the short-run and over the long-run if S. 615 is enacted.

3. Please provide the Committee with your estimate of the amount by which gas supplies and gas reserves would increase or decrease, both over the short-run and over the long-run, if S. 615 is enacted.

4. Please provide the Committee with your estimate of the level of the gas cap if S. 615 were enacted today and the amount by which the cap would reduce average purchased gas costs.

5. Some witnesses appearing before the Committee have suggested that enactment of S. 615 would bring about chaos in the gas market. Please provide the Committee with your assessment of the prospect of that occurring.

MINORITY MEMBERS' ADDITIONAL QUESTIONS FOR

NATURAL GAS HEARING RECORD

WITNESSES APPEARING MARCH 12, 1983

QUESTIONS FOR PANEL FOUR

1. Do you support any of the bills pending before the Committee on Energy and Natural Resources? If so, please indicate which one(s).

2. Please provide the Committee with specific statutory language for any amendments you would like to see adopted if the Committee were to use S. 615 as a mark-up vehicle for natural gas legislation.

3. If the amendments you support are not adopted, and if you personally had to vote up or down on S. 615, would you support it or would you support a continuation of the existing law?

4. If controls are removed in the manner proposed by the Administration, or in any other manner, will prices rise or fall? By how much? Why?

5. If prices fall, how much will production fall?

6. Can you explain specifically and in detail why prices are not falling now?

7. Giving a broad interpretation to the Natural Gas Act and the Natural Gas Policy Act, what authority might the FERC have to remove any barriers that exist at the present time to the fall in prices? Could its authority under Sec. 601(c) of the NGPA, concerning limitations on passthroughs in the event of "fraud, abuse, or similar grounds", be interpreted to provide such authority? Could its rulemaking authority under Sec. 501(a) of the NGPA be used to rectify the situation?

nojc
National Oil Jobbers Council
1707 H Street, N.W., 11th Floor
Washington, D. C. 20006 · 202/331-1198

March 30, 1983

Representing
Member
Associations in

Mr. Howard Useem
Committee on Energy & Natural Resources
U.S. Senate
3106 Dirksen Senate Office Bldg.
Washington, D.C. 20510

Dear Howard:

On behalf of Chris Weber, NOJC's witness who testified before the Senate Energy Committee on Saturday, March 12, NOJC submits the following answers to the questions raised by the Majority and Minority members of the Committee:

Majority Member Questions

Question #1: Please provide the Committee with the specific legislative language necessary to implement those changes to the Administration's bill, S 615, that you identified in your oral and written testimony as being necessary. Also, please provide the Committee the justification for each of your recommended changes.

> Answer: See attached bill - amendments on pages 3, 7, 8, 12, 15, 16, and 19. We believe these amendments are simple and straightforward. They provide for deregulation of natural gas in a manner which allows for a market environment on January 1, 1985 without, in any way, diminishing the consumer protection elements of the legislation.

Question #2: Please provide the Committee with your estimate of the amount by which gas prices would increase or decrease, both over the short-run and over the long-run, if S 615 is enacted.

> Answer: We believe the impact for the short-term, immediate future would be a decrease in natural gas prices. We would anticipate moderate increases as the general economy improves and the demand for natural gas increases. The increase in natural gas prices would most likely be tempered by the cost of competing fuels.

Question #3: Please provide the Committee with your estimate of the amount by which gas supplies and gas reserves would increase or decrease, both over the short-run and over the long-run, if S 615 is enacted.

> Answer: Natural gas supplies and reserve additions are predominantly affected by economic conditions and consumer demand. Production will generally be geared to meet demand because natural gas, unlike petroleum, is less easily stored. The more important result, if S 615 were enacted, would be a substantial increase in drilling activity.

Question #4: Please provide the Committee with your estimate of the level of the gas cap if S 615 were enacted today and the amount by which the cap would reduce average purchased gas costs.

> Answer: We are unable to estimate the gas cap levels at this time. We would point out, however, that this legislation establishes two caps - a transitional price cap and a cap on purchased gas adjustment passthrough by pipelines. Ultimately, and especially given declining prices for competing fuels, the market influence reflected in the cost of competing fuels should act as a self-limiting cap on natural gas prices.

Question #5: Some witnesses appearing before the Committee have suggested that enactment of S 615 would bring about chaos in the gas market. Please provide the Committee with your assessment of the prospect of that occurring.

> Answer: It is unlikely that there could possibly be more chaos in the gas market than the chaos that exists under current law with over 20 categories of natural gas. We would anticipate with the enactment of S 615 that the natural gas market would react similar to the petroleum market with an intense period for several months while contracts were renegotiated, followed very soon with stability in the market.

Minority Member Questions

Question #1: Do you support any of the bills pending before the Committee on Energy and Natural Resources? If so, please indicate which one(s).

> Answer: Yes. We support S 615.

Question #2: Please provide the Committee with specific statutory language for any amendments you would like to see adopted if the Committee were to use S 615 as a mark-up vehicle for natural gas legislation.

> Answer: Please see answer to Question #1 submitted by Majority members of the Committee.

Question #3: If the amendments you support are not adopted, and if you personally had to vote up or down on S 615, would you support it or would you support a continuation of the existing law?

> Answer: We would support S 615.

Question #4: If controls are removed in the manner proposed by the Administration, or in any other manner, will prices rise of fall? By how much? Why?

> Answer: Assuming that high and low-priced contracts are renegotiated, prices would likely decline, especially given the current market with reduced consumer demand. It might depend somewhat upon which

contracts (high or low-priced) are renegotiated first. Contracts for forever-regulated low-cost gas and unrealistically high-priced gas should be renegotiated in a common period of time so that natural gas prices will seek their own level among competing fuels.

Question #5: If prices fall, how much will production fall?

Answer: Production declines depend upon which category is being referred to in this question. We would expect additional production of less expensive natural gas if forever-regulated gas is freed from price controls. Conversely, production of high-priced natural gas would tend to decline as drilling declines.

Question #6: Can you explain specifically and in detail why prices are not falling now?

Answer: The fundamental reason is basic economics. There is simply no incentive in most areas for prices of natural gas to fall. Utilities do not have to be competitive in most areas and there is no economic incentive for utilities to shop among producers or pipelines for the best natural gas prices for their consumers.

Question #7: Giving a broad interpretation to the Natural Gas Act and the Natural Gas Policy Act, what authority might the FERC have to remove any barriers that exist at the present time to the fall in prices? Could its authority under Section 601(c) of the NGPA, concerning limitations on passthroughs in the event of "fraud, abuse, or similar grounds", be interpreted to provide such authority? Could its rulemaking authority under Section 501(a) of the NGPA be used to rectify the situation?

Answer: As a general comment, use of a fraud statute, ipso facto, suggests that there is considerable fraud and abuse behind rising natural gas prices. We do not believe this is the case. Natural gas prices are rising because of the regulatory system which has held some natural gas prices at unrealistically low levels and others at unrealistically high levels. Legislative deregulation, not additional, unnecessary regulatory meddling, is the most efficient means to rectify current uncertainty in the natural gas market.

I would be pleased to discuss any of these answers with you or members of the Committee.

Sincerely,

Mark O. Decker tm

Mark O. Decker
Vice President - Policy

MOD/tdm

cc: Chris Weber

enc.

(Suggested amendments on Pgs. 3,7,8,12,15,16,19)

A BILL

To correct deficiencies in the Natural Gas Policy Act of 1978, to protect natural gas consumers from price increases because of current distortions in the regulated market for natural gas, to provide for a free market for natural gas, to permit natural gas contracts to reflect the change from a regulated to a free market, to eliminate incremental pricing requirements for natural gas, to eliminate certain fuel use restrictions, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That this Act may be cited as the "Natural Gas Consumer Regulatory Reform Amendments of 1983".

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Sec. 503. Repeal of Incremental Pricing Requirements.

TITLE I -- PURCHASED GAS COST

PURCHASED GAS COST

SEC. 101. (a) Title VI of the Natural Gas Policy Act of 1978 (15 U.S.C. §3431 et seq.) is amended by adding a new section 603 to read as follows:

"SEC. 603. LIMITATION ON THE PASSTHROUGH OF CERTAIN PURCHASED GAS COSTS.

"(a) LIMITATION ON PURCHASED GAS ADJUSTMENTS. -- Notwithstanding section 601(c) of this Act, for purposes of sections 4 and 5 of the Natural Gas Act, from the first day of the first month following enactment of the Natural Gas Consumer Regulatory Reform Amendments of 1983 through December 31, 1985 ~~1985~~, the part of a pipeline's rate that reflects purchased gas costs may not exceed its allowed rate for purchased gas cost, except as provided in subsection (b).

"(b) RECOVERY OF ADDITIONAL PURCHASED GAS COST. -- A pipeline may file an application under this subsection with the Commission to increase its rates to reflect any purchased gas cost that subsection (a) of this section prevents it from recovering. Notwithstanding section 4(e) of the Natural Gas Act, no increase to the rates of a pipeline that may be recovered under this subsection may go into effect unless the Commission, after opportunity for hearing, issues an order that grants the application, in whole or in part, with such modifications and upon such terms and conditions as the Commission may find necessary and appropriate. The proceeding under this subsection shall be conducted by the Commission separately from proceedings on other rate applications that are filed under section 4 of the Natural Gas Act. In any such proceeding, the Commission shall allow recovery if it determines that the costs sought to be recovered were just, reasonable, and prudently incurred. In making this determination, the Commission shall consider the reasonable availability of lower cost supplies to the pipeline and the necessity of such costs for the pipeline to render adequate service to its existing customers. Within sixty days of the date of the enactment of the Natural Gas Consumer Regulatory Reform Amendments of 1983, the Commission shall prescribe rules for applications under this subsection. These rules shall facilitate expeditious decisions on these applications.

"(c) DEFINITIONS. --

"(1) ALLOWED RATE FOR PURCHASED GAS. -- The term "allowed rate for purchased gas" means, for a particular pipeline, for a particular month, the pipeline's average cost per million Btu's for purchased gas delivered to the pipeline during the month preceding the enactment of the Natural Gas Consumer Regulatory Reform Act of 1983 plus the adjustment amount for that particular month.

"(2) ADJUSTMENT AMOUNT. -- The term "adjustment amount" means, for a particular month, the difference between the national rate and the adjusted national rate for that particular month.

"(3) NATIONAL RATE. -- The term "national rate" means the national average cost per million Btu's for purchased gas delivered to all interstate pipelines during the month preceding the enactment of the Natural Gas Consumer Regulatory

Reform Amendments of 1983.

"(4) ADJUSTED NATIONAL RATE. -- The term "adjusted national rate" means --

"(A) for the month in which the Natural Gas Consumer Regulatory Reform Amendments of 1983 is enacted, the national rate multiplied by the annual inflation adjustment factor (as defined in section 101(a) of this Act) for that month; and

"(B) for any particular succeeding month, the adjusted national rate for the preceding month multiplied by the annual inflation factor (as defined in section 101(a) of this Act) for that particular month.

"(d) REPORTING REQUIREMENT. -- By the fifth day following the enactment of the Natural Gas Consumer Regulatory Reform Amendments of 1983, each interstate pipeline shall report its average cost per million Btu's for purchased gas delivered to it during the month preceding the enactment of the Natural Gas Consumer Regulatory Reform Amendments of 1983 and the volume of purchased gas delivered to it during that month.

"(e) PUBLICATION. -- The Commission shall compute and publish the adjustment amount for each month at least five days before the beginning of that month.

"(f) AFFILIATED PRODUCTION. -- No interstate pipeline may recover any costs associated with its own production or purchases from any affiliated producer to the extent such production or purchases were not reduced to a percentage of deliverability no higher than the percentage of deliverability to which the pipeline had exercised contemporaneously a contractual right to reduce its takes of less expensive gas."

(b) The table of contents of the Natural Gas Policy Act of 1978 (15 U.S.C. §3301 note) is amended by inserting after the item relating to section 602 the following:

"Sec. 603. Purchased Gas Cost."

TITLE II -- REMOVAL OF WELLHEAD PRICE CONTROLS AND REPEAL OF JURISDICTION OVER CERTAIN FIRST SALES

REMOVAL OF WELLHEAD PRICE CONTROLS

SEC. 201. Section 121 of the Natural Gas Policy Act of 1978 (15 U.S.C. §3331) is amended to read as follows:

"SEC. 121. ELIMINATION OF PRICE CONTROLS FOR CERTAIN NATURAL GAS SALES.

"(a) GENERAL RULE. -- The provisions of subtitle A respecting the maximum lawful price for any first sale of natural gas shall cease to apply to any first sale of natural gas subject to any contract that was executed or amended after the date of enactment of the Natural Gas Consumer Regulatory Reform Amendments of 1983, unless the contract specifically provides that the contract shall not operate to terminate the application of subtitle A.

"(b) HIGH-COST NATURAL GAS. -- Except as provided in subsection (a) of this section, with respect to the first sale of high-cost natural gas which is described in section 107(c)(1), (2), (3), or (4), --

"(1) beginning on the effective date of the incremental pricing rule required under section 201, the provisions of subtitle A respecting the maximum lawful price for the first sale of natural gas shall cease to apply; and

"(2) beginning on the date of enactment of the Natural Gas Consumer Regulatory Reform Amendments of 1983 through December 31, ~~1985,~~ 1985 the price shall not exceed the higher of the contract price on the date of the enactment of the Natural Gas Consumer Regulatory Reform Amendments of 1983 or the gas cap price, if published, for the month during which the gas is delivered.

"(c) SPECIAL RULE FOR CERTAIN GAS. -- Except as provided in subsection (a), with respect to the first sale of gas covered by this subsection, --

"(1) beginning January 1, 1985, the provision of subtitle A respecting the maximum lawful price shall cease to apply; and

"(2) ~~beginning January 1, 1985, through December 31, 1985,~~ beginning 60 days after enactment through January 1, 1985, the price shall not exceed the gas cap price for the month during which the gas is delivered.

"(3) GAS COVERED BY THIS SUBSECTION. -- This subsection applies to --

"(A) new natural gas (as defined in section 102(c));

"(B) natural gas produced from any new, onshore production well (as defined in section 103(c)), if such natural gas --

"(i) was not committed or dedicated to interstate commerce on April 20, 1977; and

"(ii) is produced from a completion location which is located at a depth of more than 5,000 feet; and

"(C) natural gas sold under an existing contract, any successor to an existing contract, or any rollover contract, if --

"(i) such natural gas was not committed or dedicated to interstate commerce on the day before the date of the enactment of this Act; and

"(ii) the price paid for the last deliveries of such natural gas occurring on December 31, 1984, or, if no deliveries occurred on such date, the price that would have been paid had deliveries occurred on such date is higher than $1.00 per million Btu's.

"(d) REMOVAL OF WELLHEAD PRICE CONTROLS ON ALL NATURAL GAS. -- Except as provided in subsections (a), (b), or (c), beginning January 1, ~~1986,~~ 1985 the provisions of subtitle A respecting maximum lawful price shall cease to apply to the first sale of any natural gas."

REPEAL OF NATURAL GAS ACT JURISDICTION OVER FIRST SALES OF COMMITTED OR DEDICATED NATURAL GAS

SEC. 202. Section 601(a)(1)(B) of the Natural Gas Policy Act of 1978 (15 U.S.C. §3431(a)(1)(B)) is amended to read as follows:

"(B) COMMITTED OR DEDICATED NATURAL GAS. -- Effective on January 1, 1985, for the purposes of section 1(b) of the Natural Gas Act, the provisions of such Act and the jurisdiction of the Commission shall not apply solely by reason of any first sale of natural gas which was committed or dedicated to interstate commerce as of the day before the date of enactment of this subsection. Effective on the date of enactment of the Natural Gas Consumer Regulatory Reform Amendments of 1983 through December 31, 1984, for the purposes of section 1(b) of the Natural Gas Act, the provisions of such Act and the jurisdiction of the Commission under such Act shall not apply solely by reason of any first sale of natural gas which is committed or dedicated to interstate commerce as of the day before the date of enactment of this Act and which is --

"(i) high-cost natural gas (as defined in section 107(c)(1), (2), (3), or (4) of this Act);

"(ii) new natural gas (as defined in section 102(c) of this Act);

"(iii) natural gas produced from any new, onshore production well (as defined in section 103(c) of this Act);

"(iv) natural gas exempted from the operation of subtitle A of title I pursuant to section 121(a); or

"(v) natural gas that was subject to a contract that expired, lapsed, was terminated pursuant to its own terms, or was terminated pursuant to the provisions of section 316 of this Act."

REPEAL OF PROVISIONS ALLOWING REIMPOSITION OF PRICE CONTROLS AND REPORT TO CONGRESS

SEC. 203. (a) Sections 122, 123, and 507 of the Natural Gas Policy Act of 1978 (15 U.S.C. §§3332, 3333, and 3417) are repealed.

(b) The table of contents of the Natural Gas Policy Act of 1978 (15 U.S.C. §3301 note) is amended by striking the items relating to sections 122, 123, and 507.

TITLE III -- TRANSITIONAL PRICE AND CONTRACT PROVISIONS

LIMITATION ON CEILING PRICES FOR CERTAIN NATURAL GAS

SEC. 301. (a) Title I of the Natural Gas Policy Act of 1978 (15 U.S.C. §§3311-3333) is amended by adding the following new section:

"SEC. 111. LIMITATION ON CEILING PRICES FOR CERTAIN NATURAL GAS.

"(a) GENERAL RULE. -- Except as provided in section 121 of this Act, beginning on the date of enactment of this section, the maximum lawful price of any first sale of natural gas subject to this subtitle shall not exceed the lower of the applicable price as calculated pursuant to sections 102 through 106, 108, and 109 or the gas cap price, if published, for the month during which the gas is delivered.

"(b) SPECIAL RULE FOR SECTION 107(c)(5) GAS. -- Except as provided in section 121 of this Act, beginning on the date of the enactment of the Natural Gas Consumer Regulatory Reform Amendments of 1983, the maximum lawful price for gas described in subsection (c)(5) of section 107 of this Act shall be no higher than the maximum lawful price for such gas during the month in which the Natural Gas Consumer Regulatory Reform Amendments of 1983 are enacted.

"(c) DEFINITION OF GAS CAP PRICE. -- The term "gas cap price" means, for a particular month, the volume-weighted average price of natural gas that is estimated to be --

"(1) delivered during the second, third, and fourth months preceding that particular month; and

"(2) delivered during the first three months of deliveries under a contract filed under subsection (e) of this section.

"(d) CALCULATION AND PUBLICATION OF THE GAS CAP PRICE. -- Beginning with the fourth month after enactment of the Natural Gas Consumer Regulatory Reform Amendments of 1983, the Commission (in accordance with section 101(a)(6) of this subtitle) shall compute and publish the gas cap price for each month through December 1985.

"(e) FILING REQUIREMENT. -- A purchaser of natural gas subject to a first sale contract executed ~~or amended~~ on or after the date of the enactment of the Natural Gas Consumer Regulatory Reform Amendments of 1983 shall file with the Commission within five days of the date on which the contract is executed ~~or amended,~~--

"(1) a summary of the contract and all ancillary agreements, including all pricing provisions;

"(2) the prices to be paid under the contract during the first three months of deliveries;

"(3) the estimated volumes (in millions of Btu's) to be delivered during the first year of the contract; and

"(4) any additional data required by the Commission.

~~This filing requirement does not apply in the case of an amendment of a contract for which data previously relating to price has been filed with the Commission under this subsection.~~

"(f) COMMISSION RULES. -- Within thirty days of the enactment of the Natural Gas Consumer Regulatory Reform Amendments of 1983, the Commission shall issue rules to implement this section."

(b) The table of contents of the Natural Gas Policy Act of 1978 (15 U.S.C. §3301 note) is amended by inserting after the item relating to section 110 the following:

"Sec. 111. Limitation on Ceiling Prices for Certain Natural Gas."

(c) Section 101(b)(5) of the Natural Gas Policy Act of 1978

(15 U.S.C. §3311(b)(5)) is amended by striking the period at the end and inserting the following:

> ", but in no event shall the operation of this paragraph be deemed to entitle any seller to collect a price in excess of that established pursuant to section 111."

(d) Section 105(b)(3)(B) of the Natural Gas Policy Act of 1978 is amended by adding a new sentence at the end to read as follows:

> "This definition shall not include any clause which establishes the price for natural gas exempted from the operation of this subtitle pursuant to section 121(a)."

REPEAL OF CERTAIN CONTRACT REQUIREMENTS AND IMPOSITION OF TAKE-OR-PAY LIMITS

SEC. 302. (a) Section 315 of the Natural Gas Policy Act of 1978 (15 U.S.C. §3375) is repealed, and a new section 315 is inserted in its place to read as follows:

"SEC. 315. IMPOSITION OF TAKE-OR-PAY LIMITS.

"(a) GENERAL RULE. -- In the case of any first sale contract in effect on the date of enactment of the Natural Gas Consumer Regulatory Reform Amendments of 1983, which has not been amended subsequent to the date of enactment, and which contains a clause requiring a purchaser to take delivery of, or if not taken, to pay for, volumes of gas in excess of 70 percent of available deliverability from those wells included under a contract, the purchaser may exercise without obligation to pay for volumes not taken in excess of 70 percent of well deliverability, a right not to accept delivery of any portion of the total volume which exceeds 70 percent of well deliverability. This right applies only to deliveries under a contract from the date of enactment of the Natural Gas Consumer Regulatory Reform Amendments of 1983 through December 31, 1985.

"(b) NOTICE REQUIREMENT. — Any purchaser electing to reduce volumes purchased pursuant to this section must give the seller a minimum of thirty days written notice prior to the date of delivery of the natural gas involved.

"(c) RELEASE OF CONTRACTUAL OBLIGATIONS. -- Upon receipt of the notice provided for in subsection (b), the seller shall have the right to terminate the contract with respect only to amounts not taken by reason of this section. If the seller elects to terminate the contract in accordance with this section, the purchaser shall tender to the seller full and unconditional release from all duties and obligations in contract or in law. The purchaser, if a transporter of natural gas, shall tender transportation in accordance with the provisions of section 316(d) of this Act.

"(d) DRAINAGE SITUATIONS. — The Commission, by rule or order, may determine that this section shall not apply to the extent the production of the volume for which delivery is required to be taken is necessary in order to prevent drainage and protect the correlative rights of the person producing the natural gas involved.

"(e) CASINGHEAD NATURAL GAS. -- This section shall not apply to casinghead natural gas.

"(f) CONTRACTS COVERING MORE THAN ONE CATEGORY OF NATURAL GAS. -- For purposes of this section, any contract establishing two or more categories of natural gas for purposes of pricing the natural gas delivered under the contract shall be treated as separate contracts for each such category."

(b) The table of contents of the Natural Gas Policy Act of 1978 (15 U.S.C. §3301 note) is amended by striking the item relating to section 315 and inserting in its place the following:

"Sec. 315. Imposition of Take-or-Pay Limits."

MARKET-OUT PROVISION

SEC. 303. (a) Title III of the Natural Gas Policy Act of 1978 (15 U.S.C. §§3361-3375) is amended by adding a new section 316 to read as follows:

"SEC. 316. MARKET-OUT PROVISION.

"(a) GENERAL RULE. -- Beginning 60 days after enactment, ~~Beginning January 1, 1985,~~ either party to a contract for the first sale of natural gas which was in effect on the date of enactment of the Natural Gas Consumer Regulatory Reform Amendments of 1983 and which contract was not thereafter amended shall have the right to terminate the contract under the following conditions:

"(1) the party wishing to terminate the contract must give notice to the other party ~~between November 16, 1984,~~

~~and November 15, 1985,~~ and at least 45 days in advance, that the contract is to be terminated;

"(2) the party giving notice of termination does not materially breach the contract at any time prior to the end of the notice period; and

"(3) the party giving notice of termination must offer to the other party a full and unconditional release from all future duties and obligations in contract or in law relating to the contract, which release is effective upon termination of the notice period.

"(b) EFFECT OF SECTION 315 REDUCTION. -- A reduction of a take-or-pay obligation pursuant to section 315 of this Act shall not be considered an amendment for purposes of subsection (a) of this section.

"(c) OBLIGATIONS OF PARTIES UPON TERMINATION. -- Neither party to a contract terminated pursuant to this section shall have an obligation to perform any act because of the contract on and after the effective date of the termination of the contract, except that a party that has received a good or service under the contract before the effective date of its termination shall have a duty to pay for that good or service as provided for in the contract and that a party that has received payment under the contract for a good or service that was not provided before the effective date of its termination shall have a duty to make restitution of the payment in cash or in kind in accordance with the contract.

"(d) TRANSPORTATION OBLIGATION. --

"(1) IN GENERAL. -- In the event that a contract is terminated under this section, a pipeline that was a party to the terminated contract shall have an obligation to transport natural gas for a producer that was a party to the terminated contract. The obligation of the pipeline shall not exceed on an annual basis the largest volume delivered under the contract during any twelve consecutive months in the thirty-six months prior to its termination.

"(2) LIMITATION OF OBLIGATION. -- The Commission, or in the case of an intrastate pipeline the State agency with jurisdiction over that pipeline, upon application by the pipeline and after opportunity for hearing, may order a limitation of the obligation of the pipeline under this subsection if compliance with the obligation would require construction of additional facilities or would impair the ability of the pipeline to render adequate service to its existing customers.

"(3) CONSIDERATION. -- The consideration for any transportation provided under this subsection shall be $.05 per million Btu's plus the cost of such transportation, as established by the appropriate State or Federal regulatory body, unless the Commisison has established, by rule, a different rate as just compensation for such transportation. No amount of such consideration shall be required to be credited and flowed back to the customers of such pipeline."

(b) The table of contents of the Natural Gas Policy Act of 1978 (15 U.S.C. §3301 note) is amended by inserting after the item relating to section 315 the following:

"Sec. 316. Market-Out Provision."

EFFECT OF GAS CAP PRICE

SEC. 304. (a) Title III of the Natural Gas Policy Act of 1978 (15 U.S.C. §§3361-3375) is amended by adding a new section 318 to read as follows:

"SEC. 318. EFFECT OF GAS CAP PRICE.

"(a) PRICE ESCALATOR CLAUSES. -- Except for natural gas described in section 107 of this Act, no price escalator clause may operate to establish a price for natural gas which is subject to the provisions of subtitle A respecting the maximum lawful price for the first sale of natural gas higher than the gas cap price. For purposes of this subsection, the term "price escalator clause" means any contract clause that provides for a periodic price increase, either on a fixed or indefinite basis, or that references other natural gas prices, Federally imposed price ceilings, or prices of other commodities.

"(b) AREA RATE CLAUSES. -- For purposes of an area rate clause, the gas cap price is a Federally established rate or price. After December 31, 1985, the gas cap price for December

1985 is ~~a Federally-established-rate-or-price."~~ an unregulated rate or price".

(b) The table of contents of the Natural Gas Policy Act of 1978 (U.S.C. §3301 note) is amended by inserting after the item relating to section 317 the following:

"Sec. 318. Effect of Gas Cap Price."

TITLE IV -- REMOVAL OF IMPEDIMENTS TO INTERSTATE MOVEMENTS OF GAS

AUTHORIZATION OF CERTAIN INTERSTATE SALES, TRANSPORTATION AND ASSIGNMENTS

SEC. 401. (a) Section 311(a) of the Natural Gas Policy Act of 1978 (15 U.S.C. §3371(a)) is amended by --

(1) amending subparagraph (A) of paragraph (1) to read as follows:

"(A) IN GENERAL. -- The Commission may, by rule or order, authorize any interstate pipeline to transport natural gas on behalf of any person."

(2) inserting "AND LOCAL DISTRIBUTION COMPANIES" after "INTRASTATE PIPELINES" in the paragraph (2) heading;

(3) inserting in paragraph (2) "or local distribution company" after "intrastate pipeline";

(4) amending subparagraph (A) of paragraph (2) to read as follows:

"(A) IN GENERAL. -- The Commission may, by rule or order, authorize any intrastate pipeline or local distribution company to transport natural gas on behalf of any person."

(5) in subparagraph (B)(ii)(I) and (II) of paragraph (2), inserting "or company" after "pipeline".

(b) Section 311(b) of the Natural Gas Policy Act of 1978 (15 U.S.C. §3371(b)) is amended by --

(1) amending paragraph (1) to read as follows:

"(1) IN GENERAL. -- The Commission may, by rule or order, authorize any pipeline or local distribution company to sell natural gas to any pipeline or local distribution company.

(2) amending paragraph (2) by --

(A) striking "MAXIMUM FAIR AND EQUITABLE PRICE" after the subparagraph designator "A" and inserting in its place "INTRASTATE PIPELINES AND LOCAL DISTRIBUTION COMPANIES";

(B) inserting "or local distribution company" following "pipeline" and "or local distribution company's" following "pipeline's" wherever they appear; and

(C) inserting "(including storage)" after "transportation" in clause (i) of subparagraph (B);

(D) adding a new subparagraph (D) to read as follows:

"(D) INTERSTATE PIPELINES. -- The rates and charges of any interstate pipeline with respect to any sales authorized under subsection (b)(1)(A) shall be just and reasonable (within the meaning of the Natural Gas

Act).";

(3) in paragraph (4), striking "pipeline's" and inserting in its place "seller's", and striking "INTRASTATE" in the heading and inserting in its place "EXISTING";

(4) in paragraphs (4)-(7), except for subparagraph (5)(a)(i), striking "intrastate pipeline" or "pipeline" wherever they appear and inserting in their place "seller";

(5) in paragraph (5)(A)(i), striking "interstate pipeline or local distribution" and inserting in its place "purchasing"; and

(6) adding a new paragraph (8) to read as follows:

"(8) DEFINITION OF SELLER. -- For purposes of this subsection, the term 'seller' means any person that sells gas under paragraph (b)(1)."

(c) Section 312 of the Natural Gas Policy Act of 1978 (15 U.S.C. §3372) is amended --

(1) by amending subsection (a) to read as follows:

"(a) AUTHORIZATION OF ASSIGNMENTS. -- The Commission may, by rule or order, authorize a pipeline or local distribution company to assign, without compensation, to any other pipeline or local distribution company, all or any portion of the assignor's right to receive surplus natural gas at any first sale, upon such terms and conditions as the Commission determines appropriate."; and

(2) by amending subsection (c) to read as follows:

"(c) SURPLUS NATURAL GAS. -- For purposes of this section, the term 'surplus natural gas' means, with respect to any pipeline or local distribution company, any natural gas which exceeds the then current demands of such person for natural gas, as determined by --

"(1) the Commission, or

"(2) the State agency having regulatory jurisdiction over that person."

ACCESS TO INTERSTATE SUPPLY SOURCES

SEC. 402. (a) Section 314 of the Natural Gas Policy Act of 1978 (15 U.S.C. $3374) is amended by --

(1) striking "first" in subsection (a), and

(2) amending subsection (b) to read as follows:

"(b) NATURAL GAS COVERED BY THIS ACT. -- For purposes of subsection (a), the term 'natural gas covered by this Act' means --

"(1) for any first sale contract, natural gas --

"(A) which is not subject to the jurisdiction of the Commission under the Natural Gas Act by reason of section 601(a)(1)(A) or (B);

"(B) the sale in interstate commerce of which --

"(i) is authorized under section 302(a) or 311(b); or

"(ii) is pursuant to an assignment under section 312(a); or

"(C) the transportation in interstate commerce of which is --

"(i) pursuant to any order under section 302(c) or section 303(b), (c), (d), or (h), or

"(ii) authorized by the Commission under section 311(a); or

"(2) for any contract, natural gas the sale or transportation of which under the contract is not in interstate commerce by reason of section 601(d) of this Act."

(b) Section 601 of the Natural Gas Policy Act of 1978 (15 U.S.C. §3431) is amended by adding new subsections (d) and (e) to read as follows:

"(d) LIMITATION OF COMMISSION JURISDICTION OVER INTRASTATE TRANSACTIONS. --

"(1) GENERAL RULE. -- No intrastate pipeline or local distribution company shall be subject to the jurisdiction of the Commission under the Natural Gas Act by reason of purchasing natural gas in a covered transaction.

"(2) SUBSEQUENT TRANSACTIONS. -- Any transportation or sale of natural gas purchased in a covered transaction which occurs beyond the point at which such gas is received in the facilities of the purchaser in the covered transaction shall not be in interstate commerce (within the meaning of the Natural Gas Act) and shall not be subject to the jurisdiction of the Commission under the Natural Gas Act to the extent that such gas remains in the State of purchase.

"(3) NATURAL-GAS COMPANY. -- For purposes of the Natural

Gas Act, the term "natural-gas company" (as defined in section 2(6) of that Act) shall not include any person by reason of, or with respect to, any transportation or sale of natural gas if the transportation or sale is not subject to the jurisdiction of the Commission solely by reason of paragraph (2) of this subsection.

"(4) STATE OF PURCHASE RULE. -- For purposes of this subsection, natural gas shall be deemed to remain in the State of purchase if the gas is not transported outside the State in which it was received into the facilities of the purchaser of the gas in a covered transaction, unless such transportation occurs in connection with --

"(A) transportation authorized under sections 302(a) or 311(a) of this Act, or

"(B) a sale or assignment authorized under sections 311(b) or 312 of this Act.

"(5) DEFINITION OF COVERED TRANSACTION. -- For purposes of this subsection, the term "covered transaction" means --

"(A) a first sale of gas --

"(i) which is not subject to the jurisdiction of the Commission under the Natural Gas Act by reason of subparagraphs (A) or (B) of paragraph (1) of subsection (a),

"(ii) which is produced on the outer Continental Shelf, or

"(iii) which is transported pursuant to an order issued under section 317 of this Act;

"(B) a sale or assignment authorized under sections 302(a), 311(b), or 312(a) of this Act; or

"(C) a sale for resale by any person not subject to the jurisdiction of the Commission solely by reason of section 1(c) of the Natural Gas Act.

"(e) NONDISCRIMINATION PROVISION. -- The Commission may not condition or deny any authorization of the sale or transportation of natural gas under this Act or the Natural Gas Act on the basis of whether the gas is consumed in the interstate market or the intrastate market."

CONTRACT CARRIER AUTHORIZATION

SEC. 403. (a) Title III of the Natural Gas Policy Act of 1978 (15 U.S.C. §§3361-3375) is amended by adding a new section 317 to read as follows:

"SEC. 317. CONTRACT CARRIER AUTHORIZATION.

"(a) IN GENERAL. -- Upon application by a producer of natural gas or by a purchaser of natural gas from a producer, the Commission shall order any interstate pipeline to carry gas under contract between producer and purchaser upon such terms and subject to such conditions as it considers just and reasonable if the Commission finds that such pipeline has available capacity, that no undue burden will be placed upon such pipeline, that no construction of new facilities would be required, and that such order would not impair the ability of such pipeline to render adequate service to its existing customers. The Commission may implement this section by rule or order.

"(b) CONSIDERATION. — The consideration for any transportation provided under this section shall be $.05 per million Btu's plus the cost of such transportation, as established by the Commission, unless the Commission has established, by rule, a different rate as just compensation for such transportation. No amount of such consideration shall be required to be credited and flowed back to the customers of such pipeline."

(b) The table of contents of the Natural Gas Policy Act of 1978 (15 U.S.C. §3301 note) is amended by inserting after the item relating to section 316 the following:

"Sec. 317. Contract Carrier Authorization."

TITLE V — REPEAL OF CERTAIN RESTRICTIONS ON NATURAL GAS AND PETROLEUM USE AND PRICING

REPEAL OF CERTAIN SECTIONS OF THE POWERPLANT AND INDUSTRIAL FUEL USE ACT OF 1978

SEC. 501. (a) The following sections of the Powerplant and Industrial Fuel Use Act of 1978 (42 U.S.C. §8301 et seq.) are repealed:

(1) sections 102(a)(16), (a)(18), (a)(19), and (a)(29) (42 U.S.C. §8302(a)(16), (a)(18), (a)(19), and (a)(29));

(2) sections 201 and 202 (42 U.S.C. §§8311 and 8312);

(3) section 302 (42 U.S.C. §8342);

(4) section 401 (42 U.S.C. §8371);

(5) section 402 (42 U.S.C. §8372); and

(6) section 405 (42 U.S.C. §8375).

(b) The table of contents in section 101(b) of the Powerplant and Industrial Fuel Use Act of 1978 (42 U.S.C. §8301(b)) is amended by striking the items relating to the sections repealed by subsection (a) of this section.

CONFORMING AMENDMENTS

SEC. 502. (a) Section 102 of the Powerplant and Industrial Fuel Use Act of 1978 (42 U.S.C. §8301) is amended by striking "and major fuel-burning installations" and "and new" wherever these phrases appear.

(b) Section 103 of the Powerplant and Industrial Fuel Use Act of 1978 (42 U.S.C. §8302) is amended --

(1) in subsection (a)(13)(B), by --

(A) striking clause (ii)(III);

(B) striking "; or" at the end of clause (ii)(II), and inserting a period in its place; and

(C) inserting "and" at the end of clause (ii)(I);

(2) in subsection (a)(15), by striking "or major fuel-burning installation" and "or new" wherever these phrases appear;

(3) in subsection (a)(20), by striking "or major fuel-burning installation";

(4) by redesignating subsections (a)(17), (a)(20), (a)(21), (a)(22), (a)(23), (a)(24), (a)(25), (a)(26), (a)(27), and (a)(28) as subsections (a)(16), (a)(17), (a)(18), (a)(19), (a)(20), (a)(21), (a)(22), (a)(23), (a)(24), and (a)(25);

(5) in subsection (b), by striking or "major fuel-burning installation" wherever this phrase appears;

(6) in subsection (b)(1)(D), by striking everything after "synthetic gas involved" and inserting in its place a period; and

(7) by striking subsection (b)(3), and redesignating subsection (b)(4) as subsection (b)(3).

(c) Section 104 of the Powerplant and Industrial Fuel Use Act of 1978 (42 U.S.C. §8303) is amended to read as follows:

"The provisions of this Act shall apply in all the States, Puerto Rico, and the territories and possessions of the United States.".

(d) Section 303 of the Powerplant and Industrial Fuel Use Act of 1978 (42 U.S.C. §8343) is amended --

(1) by striking "or installation" and "or installations" wherever the phrases appear;

(2) by striking "or 302" wherever the phrase appears;

(3) by striking subsection (a)(3);

(4) by amending subsection (b)(1) to read as follows:

"(1) The Secretary may prohibit, by rule, the use of natural gas or petroleum under section 301(b) in existing electric powerplants.";

(5) in subsection (b)(3), by striking "or major fuel-burning installation"; and

(6) by amending the last sentence of subsection (b)(3) to read as follows:

"Any such rules shall not apply in the case of any existing electric powerplant with respect to which a comparable prohibition was issued by order."

(e) Section 403 of the Powerplant and Industrial Fuel Use Act of 1978 (42 U.S.C. §8373) is amended by striking --

(1) in subsection (a)(1), "major fuel-burning installation, or other unit" and the comma immediately preceding this phrase and "installation, or unit" and the comma immediately preceding this phrase;

(2) in subsection (a)(2), "installation, or other unit" and the comma immediately preceding that phrase, and "installation, or unit" and the comma immediately preceding that phrase;

(3) in subsection (a)(2), the last sentence; and

(4) subsection (a)(3).

(f) Section 404 of the Powerplant and Industrial Fuel Use Act of 1978 (42 U.S.C. §8374) is amended by striking —

(1) in subsection (c), "new or" in the phrase "applicable to any new or existing electric powerplant"; and

(2) subsection (g).

(g) Section 701 of the Powerplant and Industrial Fuel Use

Act of 1978 (42 U.S.C. §8411) is amended by striking --

(1) in the last sentence of subsection (b), "or installation";

(2) subsection (c);

(3) in the title of subsection (d), "AND EXEMPTIONS";

(4) in the first sentence of subsection (d)(1), "or any petition for any order granting an exemption (or permit)";

(5) in subsection (d)(1)(B), "or in the consideration of such petition";

(6) in subsection (f), "or a petition for an exemption (or permit) under this Act (other than under section 402 or 404),"; and

(7) subsection (g).

(h) Section 702 of the Powerplant and Industrial Fuel Use Act of 1978 (42 U.S.C. §8412) is amended by striking --

(1) in the title of subsection (a), "OR EXEMPTION";

(2) in subsection (a), "or granting an exemption (or permit)";

(3) subsection (b), and redesignating subsection (c) as subsection (b);

(4) in the first sentence of subsection (b)(1) (as redesignated), "or by the denial of a petition for an order granting an exemption (or permit) referred to in subsection (b),";

(5) in the first sentence of subsection (b)(1) (as

redesignated), "such rule, order, or denial is published under subsection (a) or (b)" and inserting in its place "such rule, or order is published under subsection (a)";

(6) in the first sentence of subsection (b)(2) (as redesignated), "the rule, order, or denial" and inserting in its place "the rule or order";

(7) in the second sentence of subsection (b)(2) (as redesignated), "(or denial thereof)"; and

(8) in subsection (b)(3) (as redesignated), "any such rule, order, or denial" and inserting in its place "any such rule or order".

(i) Section 711 of the Powerplant and Industrial Fuel Use Act of 1978 (42 U.S.C. $8421) is amended by striking in the first sentence of subsection (a), "or major fuel-burning installation".

(j) Section 721 of the Powerplant and Industrial Fuel Use Act of 1978 (42 U.S.C. $8431) is amended by striking subsection (c) and redesignating subsection (d) as subsection (c).

(k) Section 723 of the Powerplant and Industrial Fuel Use Act of 1978 (42 U.S.C. $8433) is amended by striking subsection (b) and redesignating subsections (c) and (d) as subsections (b) and (c).

(l) Section 731 of the Powerplant and Industrial Fuel Use Act of 1978 (42 U.S.C. $8441) is amended by striking --

(1) "or major fuel-burning installation" wherever the phrase appears; and

(2) "title II or" in subsections (a)(1) and (g)(3).

(m) Section 745 of the Powerplant and Industrial Fuel Use Act of 1978 (42 U.S.C. §8455) is amended by striking in the first sentence of subsection (a), "from new and existing electric powerplants and major fuel-burning installations" and inserting in its place "from existing electric powerplants".

(n) Section 761 of the Powerplant and Industrial Fuel Use Act of 1978 (42 U.S.C. §8471) is amended by striking --

(1) in subsection (a), "any existing or new electric powerplant or major fuel-burning installation" and inserting in its place "any existing electric powerplant"; and

(2) in subsection (b) --

(1) "new or" in the phrase "In the case of any new or existing facility"; and

(2) "except to the extent provided under section 212(b) or section 312(b)" and the comma immediately preceding that phrase.

REPEAL OF INCREMENTAL PRICING REQUIREMENTS

SEC. 503. (a) Subject to subsections (b) and (c) of this section, title II of the Natural Gas Policy Act of 1978 (15 U.S.C. §§3341-3348) is repealed, and the items relating to title II are stricken from the table of contents of that Act.

(b) A rule promulgated by the Commission under title II of the Natural Gas Policy Act of 1978 shall continue in effect only with respect to the flow-through of costs incurred before the enactment of the Natural Gas Consumer Regulatory Reform Amendments of 1983, including any surcharges based on such costs.

(c) The Commission may take appropriate action to implement this section.

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Official Committee File

SENATE COMMITTEE ON
ENERGY AND NATURAL RESOURCES
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WASHINGTON, D.C. 20510

April 12, 1983

Mr. Howard Useem
Professional Staff Member
U.S. Senate Committee on Energy
and Natural Resources
SD 306
Washington, DC 20510

Dear Mr. Useem:

This is in response to your request to provide answers to follow-up questions of various Committee members regarding natural gas legislation. We have provided specific legislative language to support the positions taken by Mr. Buckley in his testimony. Specifically, the attached amendments would implement the following changes from S.615: Gas scheduled for deregulation on January 1, 1985, would be deregulated on enactment; old gas would be deregulated on January 1, 1985; the interim gas price cap would end on January 1, 1985; and the market-out provision would operate from enactment until January 1, 1985.

We appreciate this opportunity to assist the Committee on this important task.

Sincerely,

Gary J. Klein

Gary J. Klein

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RESPONSE OF NORTHEAST COALITION FOR ENERGY EQUITY

I. Questions from Various Republican Members of the Committee

(1) See attached Amendments to S.615. The justification for these changes are outlined in the Testimony of John Buckley.

(2) No estimate.

(3) No estimate.

(4) No estimate.

(5) Not applicable.

II. Minority Members' Additional Questions

(1) The Northeast Coalition does not support any of the alternatives presently pending before the Committee.

(2) Please see the amendments drafted by the Northeast Coalition in response to Question 1 posed by the Majority.

(3) The Northeast Coalition would support the continuation of existing law.

(4) Some gas prices will rise; other will fall. On average, gas prices would rise less than under existing law.

(5) No estimate.

(6) No.

(7) This analysis has not been conducted by the Northeast Coalition.

IN THE SENATE OF THE UNITED STATES

AMENDMENT

Intended to be proposed by Mr. to S. 615, an Act to cover deficiencies in the Natural Gas Policy Act of 1978, viz:

Section 101(a) is amended by deleting "December 31, 1985" on page 3, line 4, and inserting in lieu thereof "December 31, 1984".

Section 201 is amended by (a) deleting "December 31, 1985" on page 7, line 12, and inserting in lieu thereof "December 31, 1984"; (b) deleting "January 1, 1985" on page 7, line 21, and inserting in lieu thereof "on the date of enactment of the Natural Gas Consumer Regulatory Reform Amendments of 1983"; (c) deleting "January 1, 1985, through December 31, 1985" on page 8, lines 1-2, and inserting in lieu thereof "on the date of enactment of the Natural Gas Consumer Regulatory Reform Amendments of 1983 through December 31, 1984"; and (d) deleting "January 1, 1986" on page 9, line 6, and inserting in lieu thereof "January 1, 1985".

Section 301(a) is amended by deleting "1985" on page 12, line 22, and inserting in lieu thereof "1984".

Section 302(a) is amended by deleting "December 31, 1985" on page 12, line 5, and inserting in lieu thereof "December 31, 1984".

Section 303(a) is amended by (a) deleting "January 1, 1985" on page 16, line 18, and inserting in lieu thereof "on the date of enactment of the Natural Gas Consumer Regulatory Reform Amendments of 1983"; (b) deleting "between November 16, 1984, and November 15, 1985, and" on page 17, lines 2-3; and (c) deleting the comma between "advance" and "that" on page 17, line 4.

Section 304(a) is amended by (a) deleting "December 31, 1985" on page 20, line 5, and inserting in lieu thereof "December 31, 1984"; and (b) deleting "1985" on line 6 and inserting in lieu thereof "1984".

At the end of S. 615, add the following new section:

"LOW-INCOME ENERGY ASSISTANCE

"Sec. 504. Section 304(b) of the Home Energy Assistance Act of 1980 (42 U.S.C. § 8603(b)) is amended by increasing the amount authorized to be appropriated for low-income energy assistance by an additional $500,000,000 for each year after the enactment of the Natural Gas Consumer Regulatory Reform Amendments of 1983."

RICHMOND UNITED NEIGHBORHOODS
19 OVERBROOK ROAD
RICHMOND, VIRGINIA 23222
804-321-2566

MEMO

TO: Senate Committee on Energy and Natural Resources, James A. McClure, Chair

FROM: Donald Fonville, RUN Energy Committee D.R.F.

DATE: March 29, 1983

RE: Additional Questions on Natural Gas Legislation

In response to your recent questionaire I am unable to answer any of the questions because I am completely opposed to the Administration's bill S. 615 because it addresses further decontrols of Natural Gas.

I would like to reiterate my testimony given on March 12, 1983. Decontrol has caused Natural Gas prices to soar. I indicated the hardship it has placed on businesses, institutions, industries, churches, and most drastically senior citizens on fixed incomes, low income, and poor people. Decontrol at this point has allowed producers to increase prices at their own discretion.

I urge this panel in general, and Senators McClure and Warner in particular, to consider and introduce legislation in the Senate that will place controls back on Natural Gas and rollback already too high prices.

Congresswoman Cardiss Collins has introduced such a bill in the House (HR 2012) and we would like to see this bill introduced in the Senate. This legislation, if passed, would solve some of the problems of the plaqued businesses institutions, industries, churches, and people in fixed and low income catagories. In contrast, S. 615 would only add to the confusion, chaos and skyrocketing prices caused by the Natural Gas Policy Act of 1978. Again, I emphasize, my opposition to S. 615.

COMMITTEE ON ENERGY AND NATURAL RESOURCES
HEARING ON
PENDING NATURAL GAS LEGISLATION
MARCH 22, 1983
10:00 a.m.
ROOM SD-366

WITNESS LIST

The Honorable Paul Biderman
Secretary
New Mexico Department of
Energy and Minerals
Santa Fe, New Mexico

Panel 1

George Yates
Vice President
New Mexico Independent Petroleum Association
Santa Fe, New Mexico

Michael Lambert
Vice President of Gas Supply
Gas Company of New Mexico
Dallas, Texas

A.M. Derrick
Senior Vice President
El Paso Natural Gas Company
El Paso, Texas

Panel 2

William L. Fisher
Director
Bureau of Economic Geology
University of Texas
Austin, Texas

G. Henry M. Schuler
Director, Energy Programs
Center for Strategic and
International Studies
Georgetown University
Washington, D.C.

MAJORITY MEMBERS' ADDITIONAL QUESTIONS FOR MR. FISHER

1. You have stated that the existence of the current excess of gas supply offers the best timing for eliminating wellhead price controls. Do you think that the supply surplus would restrain increases in the price of old gas, if S. 615 were enacted? Or would the supply surplus really only serve to restrain overall average prices?

2. You stated that it is difficult to predict the kind, volume, and timing of contracts that would be renegotiated, if S. 615 were enacted. How much renegotiation do you think would occur prior to January 1, 1985? Would most producers wait until that date, and then abrogate their contracts?

3. Some have asserted that the decontrol of old gas would not result in any increase in gas reserves or gas production. The claim has been made that old gas decontrol is just a windfall gift to producers. As a petroleum geologist, how would you respond to these arguments?

MINORITY MEMBERS' ADDITIONAL QUESTIONS FOR

NATURAL GAS HEARING RECORD

WITNESSES APPEARING MARCH 22, 1983

1. Do you support any of the bills pending before the Committee on Energy and Natural Resources? If so, please indicate which one(s).

2. Please provide the Committee with specific statutory language for any amendments you would like to see adopted if the Committee were to use S. 615 as a mark-up vehicle for natural gas legislation.

3. If the amendments you support are not adopted, and if you personally had to vote up or down on S. 615, would you support it or would you support a continuation of the existing law?

THE UNIVERSITY OF TEXAS AT AUSTIN
BUREAU OF ECONOMIC GEOLOGY

May 5, 1983

Mr. E. David Doane
Committee on Energy
and Natural Resources
United States Senate
Washington DC 20510

Re: Additional questions of Majority and Minority Members (attached)

Dear David:

I apologize for being late in responding to your follow-up questions relating to my testimony to the Committee on March 22, 1983.

MAJORITY

Question 1. If S.615 were enacted in the face of the current supply surplus, that surplus along with the cap provisions of the bill would likely restrain and lower somewhat average prices. Old gas prices would increase as incentive priced gas would decrease and the range of prices narrowed. But I suspect that old gas prices would remain below the "average" and incentive priced gas above the "average." Again, it would be the specific cap feature of S.615 and the dampening effect of the surplus which is expected to persist for at least two years.

Question 2. In my judgment there would be an incentive for producers and purchasers to renegotiate most contracts prior to January 1, 1985. Again, this incentive lies in realizing a market in a likely protracted period of soft demand. Both producers and purchasers will make attempts to estimate the longer-term market, a critical necessity in the gas business as to price weighted against volume. A prudent producer in the face of surplus will temper price for volume, as either are elements in cash flow.

UNIVERSITY STATION, BOX X · AUSTIN, TEXAS 78712-7508
PHONE (512) 471-1534 or 471-7721

Mr. E. David Doane
May 5, 1983
Page 2

Queston 3. Increase of price of old gas to levels nearer to the average of "market clearing price" will open up a number of opportunities to the producers or holders of old gas to increase recovery. A very obvious factor is the economic limit of a well relative to pressure declines. As pressures in a reservoir decline, yields from wells decline. Clearly, a higher price of the produced gas will extend the economic productive life of the wells. A significant additional recovery would be expected. Also, the incentive for well work-overs will enlarge recovery. Finally, and in my judgment of considerable significance, is the incentive for infill drilling. Most old gas reservoirs were developed on a wide 640 acre spacing. We know that many reservoirs show wide degree of compartmentalization with undrained or isolated segments. These could be captured through more closely spaced infill wells. We have witnessed very significant reserve growth in oil fields coupled with decontrol and greater infill drilling. Comparable results would be expected with increased value for gas.

MINORITY

Question 1. I support S.615 as an equitable and practical approach to ordering the existing disordered natural gas market.

Question 2. My only specific suggestion as reflected in my testimony would be a modification in the gas cap formula calculation.

Question 3. I would support S.615.

I trust these responses are useful to you and again apologize for being so late in responding.

Best regards.

Sincerely yours,

Bill

W. L. Fisher
Director

WLF:dt
enclosure

The
El Paso Company

1050 CONNECTICUT AVENUE N.W.
SUITE 200
WASHINGTON D.C. 20036

PHONE 202-429-2605

ROBERT N HARBOR VICE PRESIDENT

April 15, 1983

Mr. Paul Gilman
Committee on Energy and Natural Resources
SD-360 Dirksen Senate Office Building
Washington, D.C. 20510

Dear Mr. ~~Gilman~~: Paul

In your letter of March 24th to Mr. A.M. Derrick of El Paso Natural Gas Company you requested that El Paso respond to several questions for the record. El Paso's response is attached. Three additional questions were posed by minority members respecting El Paso's position on legislation pending before the Committee on Energy and Natural Resources. El Paso is presently reviewing all the natural gas legislation that has been introduced in Congress and therefore is not prepared to answer these questions at this time. El Paso has however provided the Committee with its proposed statutory language on the issue of pipeline production as a part of Mr. Derrick's testimony before the Committee on March 22, 1983. A copy of this statutory language is attached herewith.

Sincerely,

Attachment

EL PASO NATURAL GAS COMPANY

Responses to Followup Questions Posed By The
U.S. Senate Committee on Energy and Natural Resources

QUESTION 1:

Mr. Derrick, in your statement you say that contractual arrangements are very difficult "to alter by mutual agreement and virtually impossible to alter unilaterally by private initiative." Are you aware of any pipelines presently unilaterally failing to take gas previously contracted for? Are pipelines who are reducing takes reducing takes equally between their pipelines and affiliate production and other producers?

RESPONSE:

I have no first hand knowledge of the failure of other pipelines to take gas pursuant to gas purchase contracts. I have followed the newspaper and trade journal articles regarding United's reduced takes of Canadian gas and Columbia's reduced takes of pipeline and producer supplies and similar actions by Northern Natural and Natural Gas Pipeline.

Pursuant to a policy which El Paso has adopted after discussions with its customers and interested state utility commissions, and to the extent operationally possible, El Paso is presently scheduling its takes of gas supplies from all sources committed to its system, including pipeline-owned and affiliate-owned wells, on a pro rata basis, up to a level of production sufficient to meet system-wide contractual take-or-pay requirements. When the market demand for gas from El Paso's system permits the production of supplies above take-or-pay levels, El Paso will serve the additional market demand with supplies scheduled into the pipeline on an annual "least cost" mix basis, to the extent permitted by operational and state regulatory constraints.

Because of the erratic fluctuations which have been experienced in the California market demand for El Paso gas for more than a year, El Paso has deferred the pursuit of new gas supplies for its system since mid-1982. El Paso continues to honor its obligation to purchase gas from all sources committed to its system before that date.

QUESTION 2:

Under S. 615, if it were enacted, do you foresee vigorous renegotiation prior to 1/1/85 when you would have the right to unilaterally market-out of a contract?

RESPONSE:

If S. 615 is enacted without modification, all existing contracts for the first sale of natural gas can be unilaterally terminated by either the seller or the buyer without regulatory constraint, in 1985, unless previously renegotiated.

Since all present gas supplies thus could be "up for grabs" in 1985, I would expect that El Paso and other pipeline buyers with certificated service obligations will vigorously attempt to renegotiate their existing supply contracts before 1985 so as to hold on to their supplies. However, unless the proposed "pipeline passthrough limitation" of S. 615 is modified, interstate pipelines as a group will be severely handicapped in their attempts to retain such supplies in competition with intrastate pipelines, distributors, and end use buyers. Indeed, it can be argued that only low-cost supply contracts are candidates for renegotiation prior to 1985, though the pipeline's ability to do so will be severely hampered by the flow-through restrictions of S. 615, and the producers of such gas will likely prefer to wait until after 1985 when they will assuredly expect a higher price offering by someone other than the currently purchasing pipeline. Moreover, low-cost interstate pipelines such as El Paso will be further disadvantaged in this competition vis-a-vis high cost interstate pipelines. Finally, it appears unlikely from a practical viewpoint that pipelines which purchase supplies under many contracts can renegotiate a significant number of them before 1985. (El Paso obtains its supplies today under more than 6300 first sale contracts covering production from about 60,000 wells.)

El Paso's current attempts to renegotiate existing high cost gas contracts with producers generally have been unsuccessful, and it is unlikely that any improvement in this situation will occur before 1985. El Paso has lowered the price which it pays to its producer affiliate for all deregulated deep gas purchases and has lowered the price it pays to non-affiliated producer suppliers of deregulated deep gas and "tight sands" gas where it has the contract right to do so.

QUESTION 3:

In your statement you point out your concern that affiliate and pipeline production should be treated "equally" with other gas. The question is, however, whether pipelines treat affiliate and pipeline produced gas equally with other gas. There has been some evidence to date that pipelines have preferentially taken their own gas over cheaper gas and that they have paid maximum lawful prices while negotiating lower prices with other producers. What is to prevent pipelines from marketing out of their affiliate production after 1/1/85 and permitting their affiliates to negotiate higher prices and simply use the contract carriage provisions of this bill to get their gas to market? Couldn't that scenario result in very little capacity being available to high-cost gas producers who had been marketed out and sought contract carriage through the pipeline?

RESPONSE:

El Paso purchases natural gas from its producer affiliate under contract provisions which have been developed through arms-length bargaining with non-affiliated producers. Thus, El Paso has treated its producer affiliate on parity with, but not more favorably than, other producers offering gas for sale in the same producing area at the same time. When the demand for gas on El Paso's system does not require the production of all available supplies, El Paso has endeavored to reduce its takes from all wellhead sources, including those of its producer affiliate, pro rata.

S. 615 properly makes no distinction between gas producers with regard to "market-out" rights. While El Paso does not presently foresee the existence of significant capacity restrictions on its ability to render contract carriage of market-out gas by means of its system in the near future, Congress may wish to clarify S. 615 to indicate the manner in which inadequate capacity should be shared by producers for marketed-out gas (e.g., on a first-come/first-serve, pro rata, or some other basis) to alleviate the concern expressed in this question.

QUESTION 4:

In your statement you say that interstate pipelines would be severely disadvantaged in competition for new gas supplies relative to intrastate pipelines because the intrastate pipelines do not have the restriction on allowed pass through of gas prices. Some would argue that pipelines such as yours, with very high levels of cheap, old gas, would be in a very superior position in the search for new gas supplies if there were no such pass through restrictions. You would be able to out bid intrastate pipelines which have no cushion gas. Do you agree with this assessment?

RESPONSE:

Assuming passage of S. 615 in its present form, the competitive advantage presented by the so-called cushion of low-cost gas would disappear, either through renegotiation of existing contracts to higher prices by the present buyer, or through the loss of dedicated low-cost gas to another buyer through the operation of the unilateral seller market-out. Therefore, since the cushion would no longer exist under S. 615, a pipeline passthrough limitation which unfairly handicaps interstate pipelines in the competition for new supplies would be unnecessary. Moreover, the approach taken by S. 615 unfairly penalizes pipelines, such as El Paso, which had relatively low supply costs prior to enactment.

Currently, El Paso's purchased gas costs are below the anticipated "gas cap." They are below the anticipated cap because El Paso has managed its gas costs and supply mix to keep its cost of gas low. Under S. 615, El Paso could not buy additional gas and automatically flow through costs above its present purchased gas costs plus the S. 615 adjustment amount without specific approval by the FERC after hearing. In these circumstances, El Paso and other low average cost pipelines would be disadvantaged vis-a-vis interstate pipelines having a purchased gas costs above the gas cap. The low-cost pipelines would be further disadvantaged relative to intrastate, distributor, or Hinshaw pipelines, whose purchased gas costs would not be subject to these same controls, and who could selectively pursue the purchase of a pipeline's low-cost supplies by outbidding the pipelines.

QUESTION 5:

The Administration proposed bill has a very innovative approach to providing consumers with an opportunity to purchase gas on a competitive basis. The contract carriage requirements of the bill which would let individual producers negotiate with individual gas users is, I believe, a very important part of this legislation. In your statement you did not discuss this at any length. Would you comment on this aspect of S. 615?

RESPONSE:

El Paso could support the S. 615 provisions that, if enacted, would require contract carriage be rendered by pipelines of producers' gas in the event of contract abrogation or as a result of the buyer reducing the take-or-pay level under existing contracts. However, El Paso's support of this contract carriage provision of S. 615 is predicated on the following conditions:

(i) That the current pipeline purchaser be given the right of first refusal in the context of the "market-out" provision of new Section 316.

(ii) That all such transportation be limited such that the pipelines would not be required to render transportation service for others if to do so would require it to construct additional facilities, or would impair the pipeline's ability to meet its service obligations to its existing customers. In this connection, only large distributors/end-users have or could have the capability, both from a financial and expertise standpoint, to separately contract with producers for their own gas supplies at prices, that together with transportation costs, would be competitive with those of their traditional suppliers. Thus, a large number of existing distributors/end-users would still require full or partial service by their traditional pipeline suppliers if the S. 615 contract carriage provision becomes law.

QUESTION 6:

In your statement, starting on page 3, you described the "minimum bill" as a "market barrier" and you recommend that "effective legislation must address rigidities at the market end of the pipeline." Questions related to this part of your presentation come to mind:

a. Is the "minimum bill" obligation in favor of a pipeline similar to the take-or-pay obligation in favor of a producer?

b. Does El Paso have the benefit of minimum bill obligations from its resale customers? If so, would El Paso be willing to give up the benefits of those obligations?

c. What about the service obligation? Should any reduction in minimum bill obligation be accompanied by a corresponding reduction in the pipeline's service obligation?

RESPONSE:

(a) An important difference between wellhead take-or-pay clauses and pipeline-distributor minimum bill provisions is that, regardless of take-or-pay clauses, producers are assured parity access to pipeline systems by state laws. Pipelines have no assured access to distributor markets absent minimum bill parity. The minimum bill problem that El Paso has addressed in its testimony before this Subcommittee involves the lack of parity between interstate pipelines serving the same market in terms of the level of the minimum bill (distributor take-or-pay) currently existing in the individual pipeline distributor contracts. In El Paso's case, these pipeline minimum bill contracts with the northern and southern California gas distributor companies currently favor the distributor companies' Canadian-supplier affiliates (Pacific Gas Transmission Company ("PGT") in the case of PGandE, and Pacific Interstate Transmission Company ("PIT") in the case of SoCal), as well as Transwestern Pipeline Company ("Transwestern"), which is an unaffiliated supplier of SoCal. Currently, these companies have effective minimum bills with the California distributors which require the distributors to take substantially higher percentages of the volumes available from these suppliers than the distributors are required to take from El Paso.

(b) Please refer to my answer to Question 6 (a) above. El Paso does not have a favored minimum bill position with the California distributors. Currently, SoCal and PGandE are required to take or pay for, on an annual basis, approximately 75 percent of the Canadian gas currently contracted for with their interstate pipeline affiliates PGT and PIT. SoCal also has obligation to take or pay for 91 percent of the annual volumes it has contracted for with Transwestern. By contrast, SoCal and PGandE have an annual obligation to purchase only about 30 percent of the volumes available from El Paso, even though El Paso's gas is much cheaper than Canadian and Transwestern gas. By 1986, SoCal and PGandE will have no firm obligation to take El Paso gas. Indeed, El Paso has no meaningful effective minimum bill. Because of this lack of parity in minimum purchase contracts among pipelines serving the California market, the California distributors and their customers are prevented from receiving the lower cost supplies available to them from

El Paso and California sources. Consequently, El Paso has become the "marginal" supplier to California, even though El Paso is the lowest cost interstate supplier to California.

El Paso desires parity in those minimum bill contracts. Parity balances the goal of maintaining a diversity of supply sources to the California distributors and the interest which they and their customers have in achieving the lowest cost supplies available from all sources. El Paso has an ineffective minimum bill currently, and will have no minimum bill with PGandE and SoCal by 1986. El Paso has nothing to give up.

(c) Yes. Whether or not parity can be achieved in pipeline-distributor minimum bill contracts, then it is El Paso's position that a pipeline which stands ready to serve a given market, but whose total available supply of gas is not purchased by a distributor should be able to reduce its service obligation to that market and have the ability to locate new markets for that excess gas supply.

QUESTION 7:

It appears from your statement, at the top of page 6, that El Paso wants the pass through limitation to be tied to the gas cap. How could El Paso, or any other pipeline company, pay more than the gas cap price for gas subject to the gas cap? Can you explain the details of this pass through proposal, both as to gas subject to the gas cap and gas not subject to the gas cap?

RESPONSE:

El Paso has proposed that guaranteed passthrough of purchased gas costs of interstate pipelines be limited to costs which do not exceed the gas cap. El Paso's average purchased gas cost is currently lower than that of 14 of the 19 major interstate pipelines. Under S. 615 in its present form, El Paso and other low average cost interstate pipelines would be discriminated against assuming the gas cap is set at some level above their average gas costs. El Paso's proposal merely suggests that it and other low average cost pipelines be permitted to automatically flow through the costs of any purchased gas up to and including the level of the gas cap. By way of illustration, El Paso's current average cost of purchased gas is $2.85/MMBtu. Assuming a gas cap set at $3.00/MMBtu, a pipeline with an average purchased gas cost of $3.25/MMBtu could buy gas at or below the gas cap and automatically flow through the price in its traditional PGA filing. El Paso, however, would require specific FERC approval to flow through any purchased gas cost above $2.85/MMBtu, as adjusted periodically. Further, there would be many purchasers, including intrastate pipelines, distributors and Hinshaw pipelines, who could buy gas at the gas cap rate without this pass through restriction. Clearly, this would put El Paso and other low average cost pipelines at a distinct disadvantage.

QUESTION 8:

Can you explain the essential difference between "pipeline production" and "affiliated production?"

RESPONSE:

The factual distinction is one of form rather than substance. "Pipeline production" refers to gas produced from working interests in oil and gas properties which the pipeline itself holds. In this capacity, the pipeline is acting as a producer. "Affiliated production" refers to gas produced from working interest in oil and gas properties held by a subsidiary or affiliate of a pipeline.

The difference in form has taken on regulatory significance. As the NGPA has been construed by the FERC, Congress in 1978 intended that affiliate production should be the subject of a "first sale" and, therefore should be governed by the provisions of the NGPA. However, the FERC determined that Congress did not intend in 1978 that pipeline production should be a "first sale" under the NGPA. Pipeline production, therefore, according to FERC, is not subject to the NGPA which governs all other domestic gas production, but is instead governed by the FERC's authority under the Natural Gas Act of 1938 over interstate pipelines. The United States Court of Appeal for the Fifth Circuit reversed the FERC's latter determination in Mid-Louisiana Gas Company et al., v. FERC 664 F.2d 530 (5th Cir. 1981) and the United States Supreme Court has the Fifth Circuit decision under review.

QUESTION 9:

Referring now to "pipeline produced gas," which is the primary subject of your third point, you have stated what Congress should do. Congress should expressly allow "pipeline production should be governed at the wellhead by the legislation applicable to all other domestic gas production." You do not tell us why. What is the justification? In your response, address the question of whether El Paso took any risk in the development of these reserves.

RESPONSE:

El Paso proposes that Congress expressly address natural gas produced by pipelines in any natural gas legislation enacted this year. Failure to expressly address it in 1978 has produced confusion regarding the intent of Congress on this matter. El Paso submits that there is no public policy reason for treating the production of natural gas discovered and developed by pipelines, which gas constitutes nearly three percent of the Nation's gas supplies, differently from other sources of domestic gas production.

A substantive argument raised against parity treatment of pipeline production is the contention that a pipeline's shareholders have borne no risk in the exploration and development of pipeline-owned oil and gas leases because such production has been priced historically under the Natural Gas Act in pipeline rate cases on a cost of service basis, which included a cost factor for the recovery of "dry hole" expenses. Independent producers, it is suggested, were treated differently, bearing all risks of "dry holes" themselves and not passing such costs through in their rates. This is a straw man argument. Price regulation of independent producers prior to the NGPA through area ratemaking, established producer rates which included a cost factor for the recovery of "dry hole" expenses. NGPA maximum lawful prices for flowing gas are also predicated on these cost of service based area and national rates. Thus, there was no difference in the risk of dry holes borne by independent producers versus pipeline producers under the Natural Gas Act and there exists no basis for less than parity treatment today under the NGPA as amended by any legislation passed by Congress this year.

Finally, as I said in my testimony before this committee, "first sale" treatment of pipeline produced gas will not put a "blank check" in the hands of pipelines. In order for the wellhead price assigned by a pipeline to its own gas production to be flowed through in its rates, the price would have to satisfy several tests: first, the pipeline must demonstrate to the FERC's satisfaction that it has not otherwise agreed to price the pipeline-produced gas at some price other than the price which the pipeline is claiming; second, if the gas production is subject to price controls, the price cannot exceed the relevant NGPA maximum lawful price; third, the wellhead price assigned could not exceed the price agreed to in comparable sales between non-affiliated sellers and buyers in arms-length transactions; finally, the wellhead price assigned to pipeline production must be sensitive to market signals. The pipeline must carefully consider whether the wellhead price assigned to its own pipeline production when added to its other gas costs and its transmission costs, will allow its product to be sold in the marketplace.

Pipeline Production

1. Amend Paragraph (20) of Section 2 as follows:

> (20) Sale. --The term "sale" means any sale, exchange, or other transfer for value and, with respect to natural gas owned and produced by any pipeline, includes the intracorporate transfer of such natural gas.

2. Amend Paragraph (21) of Section 2 as follows:

> (21) First Sale. --
> (A) General Rule. -- The term "first sale" means any sale of any volume of natural gas -
>
> (i) to any interstate pipeline, (or) intrastate pipeline, or to the transmission division of a pipeline in the case of natural gas owned and produced by that pipeline:
>
> * * * *

3. Amend Section 601(b)(1)(A) as follows:

> (A) First Sales. -- Subject to paragraph (E), for purposes of Sections 4 and 5 of the Natural Gas Act, any amount paid (including, with respect to natural gas owned and produced by any pipeline, any wellhead value assigned by the pipeline to such natural gas) in any first sale of natural gas shall be deemed to be just and reasonable if --
>
> * * * *

4. Amend Section 601(c)(2) as follows:

> (2) Recovery of Just and Reasonable Prices Paid. -- For purposes of Sections 4 and 5 of the Natural Gas Act, the Commission may not deny any interstate pipeline recovery of any amount paid with respect to the purchase of natural gas (including with respect to natural gas owned and produced by any pipeline, any wellhead value assigned by the pipeline to such natural gas) if --
>
> * * * *

Explanation

Amendments to NGPA Section 2. Definitions, paragraphs (20) and (21):

The above amendments prospectively expand the current NGPA definitions of "sale" and "first sale" to expressly include domestic natural gas owned and produced by pipeline companies. These amendments do not affect the resolution of the question presently pending before the United States Supreme Court in the Mid-Louisiana case regarding whether Congress in 1978 implicitly applied the NGPA to pipeline production.

By the current natural gas legislation amending the NGPA of which these amendments are a part, Congress is establishing a natural gas wellhead pricing and price decontrol policy intended to comprehensively address all present and future natural gas produced in the United States. The described amendments of the "sale" and "first sale" definitions insure that pipeline production is to be governed in the future by the same national energy policy applicable to all other domestic gas production.

Amendments to NGPA Sections 601(b)(i)(A) and 601 (c)(2):

The above amendments to Title VI of the NGPA expressly provide the terms and conditions under which, inter alia, the well head value assigned by a pipeline to its pipeline owned and produced gas shall be deemed to be just and reasonable for purposes of recovery in interstate pipeline rates regulated by the Federal Energy Regulatory Commission under the Natural Gas Act.

By these clarifying amendments, Congress does not grant pipeline companies unlimited discretion in assigning a value to their pipeline production for ratemaking purposes. In order for the value assigned by a pipeline to its own gas production to be deemed just and reasonable under the Natural Gas Act, NGPA Section 601(b)(i)(A), as amended, provides that the assigned value cannot exceed the relevant NGPA maximum lawful price, where applicable. Moreover, the values assigned by an interstate pipeline to both its own price-controlled and price-decontrolled production will continue to be subject to the affilated entities limitation of Section 601(b)(1)(E) as measured by comparable sales between non-affiliates in arms-length transactions. Finally, the pipeline will consider the market demand for gas delivered from its pipeline system at the price which will result, in part, from the wellhead value which it decides to assign to its own pipeline production.

UNITED STATES SENATE

Committee on Energy and Natural Resources

Pending Natural Gas Legislation

March 22, 1983

Supplemental Answers to Committee on Energy and Natural Resources

QUESTION NO. 1: Mr. Lambert, it has been suggested, and Mr. Derrick also commented on the fact, that intrastate pipelines under S. 615 will have superior competitive position. Do you believe that the extension of a PGA limitation like that imposed on the interstate pipelines is appropriate in this instance?

ANSWER: During my testimony before the Senate Committee, I indicated that the Company's position was to oppose for both the interstate and intrastate pipelines any PGA limitation as proposed under Senate Bill 615. Speaking strictly for Gas Company of New Mexico, I would like to reiterate that we only purchase approximately 10% of the natural gas reserves currently produced from all sources within the State of New Mexico and that our limited market for such natural gas would preclude, for the most part, our being a significant competitor for the remainder of the natural gas produced in New Mexico. We feel that a PGA limitation like that suggested for the interstates if applied to the intrastate pipelines under S. 615, would tend to inhibit the Company's own gas acquisition program since the amount being proposed to be deferred represents approximately 8-9% of the total resale value of natural gas in the State of New Mexico. With that much of the Company's resources exposed to potential denial of flowthrough and the extra financing cost associated therewith, we feel that this type of limitation is not in our best interest nor the customer's best interest.

QUESTION NO. 2: If there were not a PGA limitation on the interstate pipelines, do you believe that those pipelines with large amounts of 104 gas could and would out compete you in bidding for new resources?

ANSWER: We feel that those interstate pipelines with large amounts of Section 104 gas would have a competitive advantage initially; however, as these pipelines purchased new supplies their average cost elements tend to increase rapidly above the existing levels including the Section 104 and as we know currently most interstate pipelines have surplus gas supplies already. Even though we feel there would be an advantage we do not feel it would be prohibitive for our Company in acquiring new sources of supply for New Mexico markets.

QUESTION NO. 3: Do you believe those provisions of S. 615 relating to the repeal of certain parts of the Fuel Use Act and the repeal of incremental pricing are important elements of a comprehensive package? Have you experienced loss of industrial customers in New Mexico? Has this raised the prices of gas to residential consumers in your opinion?

ANSWER: We do believe that the provisions of S. 615 relating to the repeal of portions of the Fuel Use Act and repeal of incremental pricing are indeed important elements of a comprehensive package relating to the deregulation of natural gas in the United States. Again, in our prepared testimony and again during the question and answer session, we indicated that all restriction as to the marketability of natural gas should be removed. Gas Company of New Mexico has experienced a significant loss of power generation load in the State of New Mexico primarily the conversion to coal usage by most of the major electric generation companies within the state. This loss of load has required that the Company spread its fixed cost to all consumers over a smaller number of sales units, thereby, raising its cost of service component to a level higher than it would have otherwise been had we retained that market.

QUESTION NO. 4: Are you concerned about the outlook for supply of natural gas in the near future? Do you believe the passage of S. 615 would enhance that supply picture, or harm that picture? What could be done with S. 615.

ANSWER: Gas Company of New Mexico is not particularly concerned about the outlook for supply of natural gas in the near future since it has been able to acquire significant supplies of long-term reserves and now controls substantial acreage committed to it under gas purchase contracts that last for the life of the lease or life or production in some instances in the San Juan. The San Juan Basin production characteristics are such that the producing life of a typical well is approximately 30 years. We do believe, however, that the passage of S. 615 in its present form, unamended for the concerns expressed at the March 22nd hearing by both the producers interstate pipelines and intrastate distribution companies, would not result in an enhanced supply for the United States. We do believe that the establishment of a free market system is the only realistic alternative to produce adequate supplies of natural gas resources at reasonable prices for the country.

QUESTION NO. 5: How do you envision the contract carriage provisions of S. 615 working, especially when intrastate pipelines would not be required to transport gas marketed out by an interstate pipeline?

ANSWER: We feel that the reading of Section 316(d) in conjunction with the new proposed Section 403 would not necessarily eliminate the possibility that intrastate pipelines not be required to transport gas "marketed-out" by any purchaser or seller. We feel it would be unrealistic to expect intrastate pipeline companies who would be losing supplies committed to them and their pipeline systems to refuse to perform transportation services which could support or offset their cost of doing business and thereby preserve or continue the benefit of spreading fixed cost over increased volumes thereby protecting their consumers and investors.

Michael H Lambert

UNITED STATES SENATE

Committee on Energy and Natural Resources

Pending Natural Gas Legislation

March 22, 1983

Supplemental Answers to Committee on Energy and Natural Resources

QUESTION NO. 1: Do you support any of the bills pending before the Committee on Energy and Natural Resources? If so, please indicate which one(s).

ANSWER: The Company has not taken a position to support any particular bills pending before the Committee on Energy and Natural Resources at this time.

QUESTION NO. 2: Please provide the Committee with specific statutory language for any amendments you would like to see adopted if the Committee were to use S. 615 as a mark-up vehicle for natural gas legislation.

ANSWER: The Company likewise has not completed the extensive analysis required to draft specific statutory language for use in amending S. 615 which would be used as natural gas legislation.

QUESTION NO. 3: If the amendments you support are not adopted, and if you personally had to vote up or down on S. 615, would you support it or would you support a continuation of the existing law.

ANSWER: During the testimony presented March 22, 1983, certain concerns were expressed by Gas Company of New Mexico and other representatives of the state regarding the potential impact of S. 615 in its present form. If we had to take a position to either support this proposed legislation or continue under the existing NGPA our position would be to support the existing law and would rely upon the Company's own resources to approach the producing entities and pipelines to renegotiate those contracts which result in unfavorable conditions for our Company. We feel that the potential detrimental effects of S. 615, as written, would risk the broad-based supply currently committed to Gas Company of New Mexico and that as a public utility the risk of losing such broad-based supply could not be tolerated.

Michael H Lambert

RESPONSES BY
INDEPENDENT PETROLEUM ASSOCIATION OF NEW MEXICO
TO
MINORITY MEMBERS' ADDITIONAL QUESTIONS FOR NATURAL GAS HEARING RECORD
WITNESSES APPEARING MARCH 22, 1983

1. The Independent Petroleum Association of New Mexico (IPANM) is not certain that it is aware of all "the bills pending before the Committee on Energy and Natural Resources" pertaining to regulation of the natural gas industry. As to those bills of which it is aware, including S. 615, the IPANM does not support any, as written.
2. Specific statutory language for amendments the IPANM recommends to S. 615 is attached.
3. If the amendments set forth in the attachment are not adopted, the IPANM would support a continuation of the existing law.

ATTACHMENT A

AMENDMENTS TO S. 615
RECOMMENDED BY
THE INDEPENDENT PETROLEUM ASSOCIATION
OF NEW MEXICO

1. Section 101 -- Delete in its entirety and substitute the following new Section 101:

"SEC. 101(a) Title VI of the Natural Gas Policy Act of 1978 (15 U.S.C. §3431 et seq.) is amended by adding a new Section 603 to read as follows:

'SEC. 603. LIMITATION ON THE PASSTHROUGH OF CERTAIN PURCHASED GAS COSTS.

'(a) LIMITATION ON PURCHASED GAS ADJUSTMENTS. -- Notwithstanding section 601(c) of this Act, for purposes of sections 4 and 5 of the Natural Gas Act, from the first day of the first month following enactment of the Natural Gas Consumer Regulatory Reform Amendments of 1983 through December 31, 1983, the part of a pipeline's rate that reflects purchased gas costs may not include any amount that the Commission determines violates defined and specific requirements of standards of prudence established under the rule ~~established~~ promulgated by the Commission pursuant to the section.

'(b) Not later than 90 days after the date of enactment of the Natural Gas ~~Policy Reform~~ Consumer Regulatory Reform Amendments of 1983, the Commission shall, by rule, establish such standards of prudence applicable to pipeline purchasing practices in order to prevent purchases that result in excessive amounts paid for natural gas.

'(c) Notwithstanding section 601(c)(2) or any other provision of law, the Commission shall initiate on its own motion or upon appropriate complaint, a proceeding for the examination of natural gas purchasing practices to determine if such practices violate the standards of prudence established by the rule described in subsection (b).

'(d) AFFILIATED PRODUCTION. -- No interstate pipeline may recover any costs associated with its own production or purchases from any affiliated producer to the extent such production or purchases were not reduced to a percentage of deliverability no higher than the percentage of deliverability to which the pipeline had exercised contemporaneously a contractual right to reduce its takes of less expensive gas.

'(e) The table of contents of the Natural Gas Policy Act of 1978 (15 U.S.C. 3301 note) is amended by inserting after the item relating to section 602 the following:

'Sec. 603. Purchased Gas Cost.

'SEC. 101(b) Subparagraph (B) of section 601(b)(1)(E) of the Natural Gas Policy Act of 1978 (15 U.S.C. 3431(b)(1)(E)), relating to limitation on charges paid by affiliated entities, is amended by striking out "the amount in comparable first sales" and inserting in lieu thereof "the lowest amount paid in comparable first sales."

2. Section 201 -- Delete subsection (b) and renumber or redesignate remaining subsections accordingly.

3. Section 201 -- Delete paragraph (2) of subsection (c).

4. Section 301 -- Delete in its entirety and renumber or redesignate accordingly.

5. Section 303 -- Delete in its entirety and renumber or redesignate accordingly.

6. Section 304 -- Delete in its entirety and renumber or redesignate accordingly.

7. Section 403 -- Delete the entire Section, substitute the following new section and add the following new Sections 404, 405, 406, 407 and 408:

"SEC. 403. (a) Title III of the Natural Gas Policy Act of 1978 (15 U.S.C. §3361-3375) is amended by adding a new section 317 to read as follows:

'SEC. 317. EQUAL ACCESS TO NATURAL GAS TRANSPORTATION FACILITIES.

'(a) General Rule.--If--

'(1) a producer or purchaser of natural gas delivers to a natural gas transporter a written request for transportation of natural gas which demonstrates need for such transportation, and

'(2) such natural gas transporter has available capacity;

such natural gas transporter shall, upon such terms and subject to such conditions as the Commission considers just and reasonable, provide such transportation to the extent of such capacity.

(b) Natural gas Available for Equal Access Transportation.--Notwithstanding any other provision of law, natural gas shall be available for transportation under subsection (a) unless, pursuant to a sales contract, it is required to be otherwise transported or delivered.

(c) Rates or Charges.--

(1) In general.--The rates and charges for transportation under subsection (a) shall be--

(A) just and reasonable (within the meaning of the Natural Gas Act), and

(B) except as provided in paragraph (2), cost-based for transportation services.

(2) Compression and looping costs.--If the Commission requires compression or looping under subsection (f)(6)(B), the Commission shall allocate the costs thereof among the natural gas producers, purchasers, and transporters who benefit from such compression or looping, on the basis of benefits received.

(3) No credit requirement.--No payments of such rates, charges, or costs shall be required to be credited or flowed back to the customers of the

natural gas transporter providing transportation under subsection (a).

(d) Submission of Request.--

(1) To natural gas transporter.--Except as provided by the Commission, a request under subsection (a) shall be delivered to the natural gas transporter at least 90 days before the first day of the period for which transportation is requested.

(2) To Commission.--The person requesting transportation under subsection (a) shall deliver a description of such request to the Commission no later than 5 days after the date the request is delivered to the natural gas transporter.

(3) Amendment or termination of sales agreement.--In the case of an agreement to amend or terminate a natural gas sales agreement which is the subject of a request under subsection (a), the person who requested transportation under such subsection shall, as soon as possible after such agreement to amend or terminate, send a description thereof to the Commission and to the natural gas transporter.

(e) Demonstration of Need for Transportation.--

(1) Contents of Request.--A request shall be treated as demonstrating need for transportation under subsection (a) if such request--

'(A) is for the transportation of natural gas pursuant to a sales agreement, and

'(B) includes a statement that such agreement--

'(i) provides for the sale of 500 Mcf or more of natural gas per day over a period of no less than 180 consecutive ways to any person,

'(ii) identifies the party which has agreed to sell such natural gas and the party which has agreed to purchase such natural gas,

'(iii) describes the period during which natural gas is requested to be transported by such natural gas transporter, and

'(iv) is contingent only on the procurement of transportation under this section.

'(2) Exceptions.--The minimum amount and period set forth in paragraph (1)(B)(i) shall not apply--

'(A) to natural gas which is made available under section 320(c) or as a result of the exercise of market-out rights by a purchaser of natural gas or breach by a purchaser of natural gas, and

'(B) to cases in which application of such minimum amount and period would not be in the public interest, as determined by the Commission.

'(f) Available Capacity.--

'(1) Opportunity for hearing.--A natural gas transporter shall be treated as having available capacity for the period that the natural gas is requested to be transported unless the Commission finds, after such transporter is given an opportunity for hearing, that--

(A) such transporter will not, during the period described in such agreement, have the facilities necessary to transport any such natural gas, or

(B) such transporter has a prior commitment for the use of all such facilities during such period.

(2) Partial capacity.--If the Commission finds, under this subsection, that the natural gas transporter has available capacity to transport only a portion of the natural gas requested to be transported under subsection (a), the Commission shall require the natural gas transporter to transport such natural gas to the extent of such available capacity.

(3) Storage facilities.--In determining whether a natural gas transporter has available capacity under paragraph (1), the Commission shall take into account the storage facilities available to such transporter.

(4) Service obligations.--In determining whether a natural gas transporter has a prior commitment

under subparagraph (B) of paragraph (1), the Commission shall not take into account any service obligation, except to the extent that the natural gas transporter demonstrates to the satisfaction of the Commission that such obligation represents current or future demands for delivery.

(5) Suspension of Transportation Requirement.--During the pendency of an application for hearing under this subsection or the pendency of such hearing, the Commission may, by rule or order, suspend the requirement that a natural gas transporter transport natural gas under subsection (a).

(6) Compression and Looping Requirements.--

(A) Compression.--If the Commission determines that, after compression, a natural gas transporter would have available capacity, the Commission shall require such compression and shall treat such transporter as having available capacity under subsection (f).

(B) Looping.--If the Commission determines that, after looping, such transporter would have available capacity, the Commission may require such looping and may treat such transporter as having available capacity under subsection (f).

(g) Ratable Takes.--

(1) In general.--In the case of a natural gas transporter who--

(A) receives, during a prescribed 2-month period, more than 1 request for transportation for any period, and

(B) has some available capacity to transport natural gas for such period but does not have adequate available capacity for transportation to satisfy all such requests,

such transporter shall, under regulations prescribed by the Commission which give priority to high-priority users (as defined in section 401(f)(2)), allocate its available capacity among all persons making such requests during such prescribed 2-month period.

(2) Prescribed 2-month period defined.--For purposes of this subsection, the term 'prescribed 2-month period' means --

(A) January - February;

(B) March - April;

(C) May - June;

(D) July - August;

(E) September - October; and

(F) November - December.

(h) Affiliates.--A natural gas transporter shall not transport natural gas under this section if such natural gas is the natural gas of an interstate pipeline (or affiliate thereof) or intrastate pipeline (or affiliate thereof).

'(i) Emergency Allocations.--This section shall not require a natural gas transporter to transport natural gas to the extent that the transportation facilities of such transporter are required pursuant to section 303(h).

'(j) The table of sections for such Act is amended by adding at the end of the items relating to title III the following new item:

'Sec. 317. Equal access to naturalgas transportation facilities."

Natural Gas Transporter Defined

"Sec. 404. Section 2 of the Natural Gas Policy Act of 1978 (15 U.S.C. 3301(2)) is amended by adding at the end thereof the following new paragraph:

'(38) Natural Gas Transporter.--The term 'natural gas transporter' means any person who is engaged in natural gas transoortation or distribution other than a person who--

'(A) does not purchase natural gas for resale,

'(B) does not acquire property through the use of eminent domain powers, and

'(C) is not an affiliate of an interstate pipeline, intrastate pipeline, or local distribution company."

Natural Gas Transporters Without Available Capacity

"Sec. 405. (a) Title III of tne Natural Gas Policy Act of 1978 is amended by adding after section 31~~6~~7 ~~(as added by section 3 of this Act)~~ the following new section:

'SEC. 318. NATURAL GAS TRANSPORTERS HAVING NO AVAILABLE CAPACITY.

'In the case of a natural gas transporter which, as determined under section 316(f), does not have available capacity to comply with a request under section 316(a) for any period, such transporter may not, during such period, transport any natural gas other than the minimum amounts of natural gas which are required to be transported pursuant to contracts entered into before the date of the earliest unfilled request to such transporter under section 316(a).

'(b) The table of sections for such Act is amended by adding at the end of the items relating to title III the following new item:

'Sec. 318. Natural gas transporters having no available capacity."

Reduction of Minimum Bills and Service Obligations

"Sec. 406. (a) Title III of the Natural Gas Policy Act of 1978 is amended by adding after section 318 ~~(as added by section 5 of this Act)~~ the following new section:

'SEC. 319. REDUCTION OF MINIMUM BILLS AND SERVICE OBLIGATIONS.

'(a) In General.--In the case of a contract entered into by a purchaser for the sale of natural gas other than natural gas transported under section 316(a), the minimum bill under such contract and the service obligation pursuant to such contract shall each be reduced by the amount of natural gas subsequently purchased by such purchaser and transported under such section.

'(b) Reduced purchases from local distribution companies.--In the case of a local distribution company which purchases natural gas other than natural gas transported under section 316(a), if such local distribution company shows, to the satisfaction of the Commission, that--

'(1) any person who is or had been purchasing natural gas from such local distribution company is purchasing natural gas for transportation under section 316(a), and

'(2) such person is purchasing less natural gas from local distribution company as a result of such person's purchases for transportation under section 316(a),

to the extent appropriate, the Commission shall reduce such local distribution company's minimum bill and shall reduce the service obligation of a person selling natural gas to such local distribution company. Any reduction of a minimum bill under the preceding sentence shall be equal to the reduction of a service obligation under such sentence.

'(b) The table of sections for such Act is amended by adding at the end of the items relating to title III the following new item:

'Sec. 319. Reduction of minimum bills and service obligations.''

Amendments of Service Classifications

"Sec. 406. (a) Title III of the Natural Gas Policy Act of 1978 is amended by adding after section ~~318~~ 319 ~~(as added by section of this Act)~~ the following new section:

'SEC. 320. AMENDMENT OF SERVICE CLASSIFICATION.

'In the case of a person who is receiving delivery of natural gas transported under section 316(a) on the same dates as such person is receiving delivery of other natural gas, the service classification of such other natural gas may not be changed for such dates without the prior approval of the Commission.

'(b) The table of sections for such Act is amended by inserting at the end of the items relating to title III the following new item:

'Sec. 320. Amendment of Service Classification.''

"Sec. 407. (a) Title III of the Natural Gas Policy Act of 1978 is amended by adding after section ~~319~~ 320 ~~(as added by section 7 of this Act)~~ the following new section:

SEC. 321. NATURAL GAS UNDER CERTAIN CONTRACTS MADE AVAILABLE FOR PURCHASE AND TRANSPORTATION.

(a) State-Determined Deliverability Amounts.--It shall be a defense to any civil action against the seller under any contract for the sale of natural gas if the purchaser under such contract takes, for 3 consecutive months, less than 50 percent of the deliverability amount, as determined by the State in which the natural gas well is located, and--

(1) the seller under the contract gives notice to the purchaser under the contract 120 days in advance that the contract is to be rescinded,

(2) such seller does not materially breach the contract before the end of the notice period; ~~and~~

(3) such seller offers to the purchaser under such contract, as part of the notice, a full and unconditional release from all duties and obligations relating to the contract, and such release is to be effective at the end of the notice period.

(b) Right of First Refusal.--In the case of natural gas described in section 104 or section 106(a) which is made available under this section, the person who would have been entitled to receive natural gas, but for the operation of this section, shall be granted a right of first refusal of the first offer to sell such natural gas which, subject to the exercise of any right of first refusal under this subsection, has been substantially accepted in principal by another person in an arms-length transaction.

'(c) The table of sections for such Act is amended by adding at the end of the items relating to title III the following new item:

Sec. 321. Natural gas under certain contracts made available for purchase and transportation."

COMMITTEE ON ENERGY AND NATURAL RESOURCES
HEARING ON
PENDING NATURAL GAS LEGISLATION
April 6, 1983

The Honorable Donald P. Hodel
Secretary
Department of Energy

The Honorable C.M. Butler,
Chairman
Federal Energy Regulatory Commission

April 26, 1983

C. M. BUTLER III
CHAIRMAN, FEDERAL ENERGY REGULATORY COMMISSION

RESPONSES TO ADDITIONAL QUESTIONS FOR NATURAL GAS
HEARING RECORD OF APRIL 6, 1983

Question 1

Several witnesses have suggested that enactment of S. 615 would tend to lead to the recreation of a dual market for natural gas.

a. Do you agree or disagree?

b. Explain in detail the basis for your answer, including your estimate of the extent to which a dual market will emerge after enactment of S. 615, and for for how long.

Answer

If S. 615 were to lead to a recreation of a dual gas market, it would be through the provisions concerning limitations on the pass through of purchased gas costs. Whether the provisions would tend to create a dual market will depend largely on whether workable procedures can be developed for allowing a pipeline full recovery of purchased gas costs in excess of the allowed rate where those costs are found to be just, reasonable, and prudent. To be workable, the procedures must provide for two things. First, they must allow rates to be based on projected future costs; this is necessary in order to avoid new rate filings each month from every pipeline with costs above its allowed rate. Second, so long as costs are found to meet the substantive standard, the procedures must allow full recovery, but no more than full recovery, of those costs that are incurred between the time that the pipeline files for a rate increase and the time that the Commission makes a final decision. If the procedures established under Section 101 permit the Commission to make a final decision within a relatively short time, full recovery might be accomplished by positive or negative surcharges added to the pipeline's rates after the final decision; such surcharges are now used under the Commission's PGA procedures to correct for errors in past cost projections. However, if the time required for a final decision would be comparable to that required under the Commission's current Section 4 rate case procedures, it would be necessary to allow pipelines to collect rate increases subject to refund. If procedures such as these are developed, I foresee no basis for the creation of a dual market.

If workable procedures cannot be developed, then the limitation on the recovery of purchased gas costs in Section 101 would tend to discourage pipelines from acquiring new supplies if acquisition of these supplies would increase the pipeline's gas costs above the allowed rate. Such pipelines thus would be at a bidding disadvantage with respect to two groups of pipelines. The first would be the intrastate pipelines, which would by law not be subject to the limitation on recovery of purchased gas costs. The second would be those interstate pipelines that could follow reasonable gas purchasing practices without reaching the allowed rate. The magnitude of this problem would depend on the number of pipelines that found it difficult or impossible to stay under the allowed rate. This number would in turn depend on several factors: the level of the gas cap; the additional price reduction resulting from the limitation of take-or-pay obligations to 70 percent; the rate of decline in pipelines' old gas reserves; and the amount of new gas needed to meet expected future demand.

However, even if a dual market is created, it would be much less significant than the dual market problem created by federal price regulation prior to enactment of the NGPA. The number of pipelines affected would be smaller; the bidding constraint on those pipelines would be less rigid; and the problem would last only until 1986. I am, however, currently unable to estimate the magnitude of any potential problem.

Question 2

Please provide the Committee with whatever data the Commission has concerning sales of natural gas from producers of natural gas directly to electric utility and industrial users. If possible, please indicate--

a. Which producers sell directly to which users;

b. The volume of gas sold by each producer to each user each year for the last five years;

c. The wellhead price of the gas in each sale;

d. The contract terms governing each sale; and

e. The date of expiration of the contract governing each sale.

Answer

The Department of Energy Organization Act of 1977 created the Energy Information Administration (EIA) and assigned to it the responsibility for collecting, analyzing and publishing natural gas data. The limited data collection activities previously performed by the Federal Power Commission (FPC) were transferred to EIA. Therefore, FERC relies upon EIA to gather data necessary to its regulatory responsibilities. The only other data available to FERC is contained in certificate and rate filings made with the Commission.

The Commission presently has in place a number of programs that cover the transportation of natural gas by interstate pipelines for end users. 1/ We have attached a summary of the transactions that have been initiated during the last five years under these programs. These do not include the long-term transportation arrangements certificated by the Commission which were, for the most part, certificated more than five years ago.

As a part of the qualification process for implementing the wellhead pricing provisions of the NGPA, certain data on pricing, volumes and purchasers are included on Form 121, which is filed as part of the application. These data are recorded on computer tapes and can be compiled by either producer or purchaser. However, it is necessary to identify the end user purchasers in order to then relate the producer-sellers. This is no simple task and will require considerable staff effort; it is estimated that over 1,000 different

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1/ Order Nos. 2, 27 and 30.

purchasers have been identified on the Form 121's. The data may have limited utility because it will only cover production from wells where NGPA incentive prices were sought. It will not include Sections 104 and 105 production. We have had limited success in determining the universe of intrastate purchasers, including end-users.

EIA currently collects data on Form 176 which provides information on producer sales to industrial and electric generating facilities. However, the particular end use customer is not specifically identified. Moreover, the data is collected on a confidential basis. It may be possible to cross reference data reported on Forms 50 and 176 and develop a reasonable data base although it will certainly not be complete. It is our understanding that EIA has responded to you on the possible use and limitations of this data.

In summary, there are many data sources that provide information on production, sales, purchases or consumption but we are not aware that any source or sources provide the information necessary to relate producer sales with end-user purchasers. Any data compiled requires assumptions in order to attempt to establish this relationship. At best, the data would have limited utility.

Question 3

Some intrastate pipelines have testified that they face severe natural gas supply problems if the NGPA is not amended.

a. Do you agree that they face supply problems?

b. Please provide the Committee with any studies the Commission has done to date on this issue.

Answer

Intrastate pipelines in Texas and Louisiana face three distinct kinds of supply problem. First, onshore and offshore reserves in state waters have been declining, as indicated in Table 1. Over the long run, therefore, intrastate pipelines in these states will have to look to sources in other states and in the federal Outer Continental Shelf. Intrastate pipelines are already able to acquire gas from other sources by becoming so-called Hinshaw pipelines that are exempt from Commission regulation under Section 1(c) of the Natural Gas Act. Existing rules concerning Hinshaw status, however, appear to be more restrictive than is necessary in order to protect the public interest. I therefore believe that changing those rules to give intrastate pipelines greater flexibility would be desirable.

Second, during the early 1970s, federal price controls effectively precluded interstate pipelines from bidding for natural gas supplies in areas in which they competed with unregulated intrastate pipelines. The intrastate pipelines, therefore, were able generally to increase the share of Texas and Louisiana production that they were able to purchase. Today, interstate pipelines are subject to the same price ceilings as intrastate pipelines with respect to new supplies of gas. The intrastate pipelines' loss of their former artificial bidding advantage could be expected to lead to their acquiring a somewhat smaller share of Texas and Louisiana production, and this has in fact occurred, as Table 2 demonstrates.

Third, the Natural Gas Policy Act went beyond simply eliminating the intrastate pipelines' former bidding advantage. It created a new artificial bidding advantage, this time favoring the interstate pipelines. The new artificial bidding advantage arose as follows. While the NGPA establishes uniform price ceilings for new sources of gas, it preserves the pre-NGPA price differences with respect to older sources. Since interstate pipelines tend to have lower costs than intrastate pipelines for old gas, the average gas costs today of interstate pipelines are generally lower than those of the major intrastate pipelines.

The lower average gas costs of some of the major interstate pipelines can have two consequences. The first is that these lower costs enable the interstate pipelines to outbid intrastate pipelines for new sources of supply. By averaging their relatively lower costs for old gas with their cost for new gas, the interstate pipelines initially were able to bid more than the intrastate pipelines for new gas supplies. Around 1981, it appeared that this bidding disadvantage was beginning to lead to supply problems for some intrastate pipelines.

During 1982, the problem in both the intrastate market and the interstate market became one of demand rather than supply. Under these conditions, the wide differences in average gas costs among interstate pipelines and between interstate pipelines and intrastate pipelines became a concern for a different reason. Some interstate pipelines began to propose to sell gas in markets traditionally served by intrastate pipelines and at prices that even an efficiently run intrastate pipeline could not match. The immediate effect of such sales would be to deprive intrastate pipelines of markets for reasons having nothing to do with their efficiency or management. The long-term consequence would be to limit their ability to acquire new reserves.

TABLE 1

Year End Natural Gas Reserves (Bcf)

	Non-Associated	Associated Dissolved	Total (1) + (2)
Louisiana On-shore			
1978	16,713	4,245	20,958
1979	14,380	3,069	17,449
1980	13,517	3,050	16,567
1981	13,496	2,911	16,407
Louisiana Off-shore			
1978	29,183	5,584	34,767
1979	28,273	5,470	33,743
1980	26,505	5,313	31,818
1981	25,717	6,324	32,041
Louisiana Total			
1978	45,896	9,829	55,725
1979	42,653	8,539	51,192
1980	40,022	8,363	48,385
1981	39,213	9,235	48,448
Texas On-shore			
1978	37,308	11,853	49,161
1979	36,460	11,699	48,159
1980	34,195	11,455	45,650
1981	34,884	10,807	45,691
Texas Off-shore			
1978	6,038	384	6,422
1979	7,417	451	7,868
1980	6,912	608	7,520
1981	7,498	499	7,997
Texas Total			
1978	43,346	12,237	55,583
1979	43,877	12,150	56,027
1980	41,107	12,063	53,170
1981	42,382	11,306	53,688
Louisiana Off-shore			
State 1980	3,089	466	3,555
Federal 1980	23,416	4,847	28,263
State 1981	2,820	449	3,269
Federal 1981	22,897	5,875	28,772
Texas Off-shore			
State 1980	1,118	31	1,149
Federal 1980	5,794	577	6,371
State 1981	1,087	25	1,112
Federal 1981	6,411	474	6,885

Source: Office of Oil & Gas Information System, EIA, "U.S. Crude & Natural Gas Reserves," Miscellaneous years.

RESPONSE TO QUESTION FROM SENATOR FORD AT APRIL 6 HEARING

Question

What are the tax consequences associated with a producer abandoning a gas well?

Answer

Provided no other wells were producing on the lease, the producer would be entitled to take as an immediate deduction the remainder of his unrecovered investment. This means that the capitalized expenditures which had not yet been fully depreciated would be allowed as an immediate deduction. Such costs include abandoned physical equipment and intangible drilling and development costs which the producer had elected to capitalize (such as wages, fuel costs, and expenses for hauling supplies). Other costs associated with abandoning the well would also be permitted as a deduction, such as plugging costs. There is no tax deduction for the value of any remaining, unrecovered hydro-carbon reserves.

If the producer abandoned the lease, the producer would be permitted to deduct immediately the unrecovered portion of the leasehold cost, i.e., the difference between the cost of the lease and the amount already deducted. The amount already deducted would have been recovered through depletion.

APPENDIX A

					Volumes Puchased/Year				
Seller (Producer)	Purchaser (USER)	Wellhead Price	Date Con't Expir	1978 MMcf	1979 MMcf	1980 MMcf	1981 MMcf	1982 MMcf	Contract Te.
1. Weeks Petroleum Co. and Sun Oil Company	Aluminum Co. of America	$1.85/Mcf + $0.10 each April (Weeks) 1.95/MMBtu (Sun)	11/22/80	1,202	165	--	--	--	Two year term, take or pay with make-up provision.
2. Davis Oil Company EMI Oil & Gas Development Drilling Program Campbell Company Limited Partnership	Celotex Corp.	$1.90/MMBtu 1st yr. 2.00/MMBtu 2nd yr.	10/23/80	1/	--	--	--	--	Two year term, 300 Mcf/day take or pay with 2 year make-up.
3. Phillips Petroleum Co.	Ball Corp.	$1.80/Mcf plus Btu adjustment not to exceed max. allowed under NGPA	6/8/81	65	131	65	--	--	Two year term.
4. Driscoll Production Co. Tejano Development Co.	Corning Glass Works	$1.90/MMBtu	12/15/78	0.03	2	--	--	--	One year term, 250 Mcf/day take or pay with 6 month make-up.
5. U.S. Energy Search, Inc.	Tri-State Brick & Tile Co.	$1.50/Mcf	9/25/80	1/	--	--	--	--	Two year term, 375 Mcf/day take or pay with 6 month make-up.
6. First Mississippi Corp.	Lithium Corp. of America	$1.61/MMBtu	8/27/80	256	472	99	--	--	One year term to be extended if parties agree. 1,200 Mcf take or pay with 6 month make-up.
7. Jar Timber Corp., et al.	Dan River, Inc.	$1.75/Mcf + escalation	11/23/81	--	49 2/	475 2/	425 2/	--	Two year term, extended two years. 1,300 Mcf/day take or pay.
8. John O. Clay	Glass Containers, Corp.	$2.075/Mcf	1/31/82	--	--	367 2/	402 2/	34 2/	Two year term. Extended two years. Annual take or pay with 1 year make-up.
9. Harvey Broyles	National Steel Corp. National Southwire	$1.85/Mcf 1st yr. 1.95/Mcf 2nd yr.	3/25/82	--	--	384 2/	498 2/	115 2/	Two year term. Extended two years. 1,365 Mcf/day take or pay with one year make-up.
10. Glen A. Martin	Kohler Co.	$1.55/Mcf	4/24/82	--	--	425 2/	529 2/	104 2/	Two year term. Extended two years. 1,450 Mcf/day with life of contract make-up plus 6 months.
11. Trident Oil & Gas Co., et al.	New Jersey Zinc	$1.48/Mcf	4/11/82	--	--	528 2/	730 2/	202 2/	--
12. Texas Pacific Co. UK Inc.	William Bonnell Co.	Sec. 106 of NGPA	10/31/81	--	37 2/	215 2/	91 2/	--	Two year term. Take or pay.
13. First Energy Corp.	Lithium Corp. of America	Maximum Lawful Price	8/2/80	548 2/	548 2/	321 2/	--	--	Extend one year.
14. Erson, Inc.	Reynolds Metals	$2.25/Mcf	1/26/81	--	137 2/	139 2/	2 2/	--	Extend two years.

cer)	Purchaser (USER)	Wellhead Price	Date of Contract Expiratic	Volumes Purchased/Year 978 Mcf	1979 MMcf	1980 MMcf	1981 MMcf	1982 MMcf	Contr ms
15. Nickles Oil & Gas Co., et al.	Various Industrial Customers of Long Island Lighting Co.	Sec. 102 NGPA price less $0.12/Mcf and Sec. 103 Ceiling Price	10/31/81	898 2/	898 2/	901 2/	748 2/	--	Extend two years.
16. Southern Union	Beker Industries	Not Reported	10/27/84	--	--	--	--	975 2/	Two year term. Best efforts transportation.
17. Southern Union	J.R. Simplot Co.	Not Reported	10/27/84	--	--	--	--	975 2/	Two year term. Best efforts transportation.
18. Southern Union	Phillips Pacific Co.	Not Reported	10/27/84	--	--	--	--	975 2/	Two year term. Best efforts transportation.
19. Prusket, Inc.	Fruehauf Corp.	Not Reported	4/4/81	--	108 2/	146 2/	38 2/	--	—
20. Prusket, Inc.	Fruehauf Corp.	Not Reported	4/4/81	--	81 2/	110 2/	28 2/	--	—
21. Towner Enterprises	National Steel Corp.	$2.30/MMBtu	8/31/80	--	3/	1,464 4/	--	--	—
22. Towner Enterprises	PPG Industries	$2.25/MMBtu	8/31/80	--	3/	1,098 4/	--	--	—
23. Tenneco Oil Co.	Air Products & Chemicals, Inc.	$0.92/MMBtu	6/30/82	--	3/	--	--	1,200 4/	—
24. LoveLady, Inc.	Phelps Dodge Corp.	$2.31/MMBtu	8/31/80	--	3/	948 4/	--	--	—
25. Chevron U.S.A., Inc.	Chevron Chemical	Not Reported	2/11/87 5/	--	--	--	--	100 6/	Best efforts transportation.
26. Chevron U.S.A., Inc.	Chevron Chemical	Not Reported	12/31/84 yr. to yr. thereafter	--	--	--	835 2/	1,825 2/	Best efforts transportation.
27. Producer Affiliates of Various Industrial Users	Owens Corning Fiberglass & Various Industrial Customers	Not Reported	8/23/87 5/	--	--	--	--	7/	—
28. Amoco Production Co.	Florida Power & Light Co.	area rate for vintage gas	6/83	70,892	70,949	71,167	70,999	8/	—
29. Sun Oil Co.	Florida Power & Light Co.	—	6/11/79	18,364	5,548	--	--	--	—
30. Sun Oil Co.	Florida Power Corp.	—	6/1/79	17,325	6,764	--	--	--	—
31. Kilroy Properties, Inc. Dawson Exploration, Inc.	Owens Corning Fiberglass	$1.35/Mcf + $0.05/ Mcf/yr.	8/28/82	730 2/	769 2/	700 2/	112 2/	101 2/	Two year term and extension. 80% minimum take or pay of delivery capacity determined annually.
32. Kilroy Properties, Inc. Edwin L. Cox Southland Royalty	Owens Corning Fiberglass	$2.00/Mcf + 0.15/ Mcf/yr.	—	365 2	365 2/	292 2/	112 2/	101 2/	Two year term & extensions. 80% minimum take or pay.
33. Tenneco Oil Co.	Air Products	Not Reported	—	--	--	--	3,542	6,023	—

	Seller (Producer)	Purchaser (USER)	Wellhead Price	Date of Contract Expiration	1978 MMcf	Volumes Purchased/Year 1979 MMcf	1980 MMcf	1981 MMcf	1982 MMcf	Contract T
34.	Moody Energy Co. Union Texas Petroleum, a division of Allied Chemicals	Allied Chemical Co.	Max. Lawful Price Permitted	[illegible]/30/90	—	—	—	—	[9]	80% minimum take or pay. Union reserved 200,000 Mcf annually to offset curtailment at Allied's LaPlatte Plant.
35.	Chevron U.S.A., Inc.	Chevron Chemical Co.	Max. Lawful Price Permitted	12/31/85	—	—	—	—	—	90% minimum take or pay.
36.	Ike Lovelady, Inc., *et al.*	Phelps Dodge	Max. Lawful Price Permitted	6/4/97	—	—	—	—	1,311[2]	80% minimum take or pay.

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[1] Service never commenced.

[2] Estimated based on daily contract volume times the number of days in contract period (maximum available).

[3] Service commenced.

[4] Estimated total volume delivered over term of contract.

[5] Transportation expires.

[6] Total actual volume delivered during the period February 11, 1982 to February 11, 1983.

[7] Daily and annual volumes unknown.

[8] Data not yet filed. Should be in the same range as previous four years.

[9] Delivery information not yet available.

TABLE 2

YEAR	TEXAS Total Marketed Production	TEXAS Interstate Pipeline Purchases	TEXAS Intrastate Production (calculated)	TEXAS percent Interstate	LOUISIANA Total Marketed Production	LOUISIANA Interstate Pipeline Purchases	LOUISIANA Intrastate Production (calculated)	LOUISIANA percent Interstate
****	**********	**********	************	**********	**********	**********	************	**********
1970	8357.7	3884	4473.7	46.47	7788.3	6216.6	1571.7	79.82
1971	8550.7	3795.8	4754.9	44.39	8081.9	6269.9	1812	77.58
1972	8657.8	3733.8	4924	43.13	7972.7	6553.2	1419.5	82.20
1973	8513.9	3576.6	4937.3	42.01	8242.4	6227.3	2015.1	75.55
1974	8170.8	3347.8	4823	40.57	7753.6	5797.6	1956	74.77
1975	7485	2960.5	4524.5	39.55	7090.6	5477.7	1612.9	77.25
1976	7191.9	2631.6	4560.3	36.59	7006.6	5308.8	1697.8	75.77
1977	7051	2418.8	4632.2	34.30	7215	5159.2	2055.8	71.51
1978	6548.2	2284.8	4263.4	34.89	7476.4	5146.7	2329.7	68.84
1979	7174.6	2750	4424.6	38.33	7266.2	5210.2	2056	71.70
1980	7251.9	2881.7	4370.2	39.74	6939.9	5161.2	1778.7	74.37
1981	7050.2	3013.8	4036.4	42.75	6780.2	5264.4	1515.8	77.64

April 27, 1983

RESPONSE TO ADDITIONAL QUESTION
Submitted by Senator Metzenbaum

Question 1

I have before me a copy of a letter dated April 5, 1983, from the President of Laclede Gas Company to Mr. McClure, the Chairman of this Committee, and I ask that it be made part of the record of this hearing.

The subject of this letter, Mr. Butler, is your opening remarks on March 12, 1983, before this Committee, in which you characterized Laclede Gas Company as having "a stake" in the continuation of the NGPA because it provides price supports for deep gas producers. You stated that Laclede sold its deep gas to an affiliate for more than $6.00 per Mcf, then bought it back at less.

Laclede claims your statements were false, that none of its production is priced as high as six dollars/Mcf, that it opposed the passage of the NGPA and continues to oppose it, favoring instead a freeze on wellhead prices and a return to cost-based wellhead prices, for itself as well as other producers. I would like your comments on the letter and on the allegations Laclede has made.

Answer

My statement was based on two propositions: that Laclede is selling gas at more than $6.00 per Mcf; and that Laclede's shareholders benefit from such sales. Mr. Liberman's letter challenges both propositions.

After reviewing Mr. Liberman's letter and data available to the Commission, I believe that I was substantially correct with respect to the first proposition. According to Commission data, Laclede is currently selling gas at approximately $5.86 per Mcf. I therefore should have said that Laclede sells its deep gas for approximately $6.00 per Mcf, rather than that it sells the gas for more than $6.00. With that change, I believe that the first proposition is correct.

With respect to the second proposition, Laclede's 1981 10-K filing states that it has formed a non-utility subsidiary, Laclede Energy Resources (LER), to undertake all new oil and gas exploration and development. LER's first action was to acquire a lease overlying a formation that was to be tested at 18,500 feet. Natural gas from that depth would generally be deregulated, and any profit on loss resulting from its sale would, according to the 10-K, would go to Laclede's shareholders.

Because the 1981 10-K filing did not indicate that the financial results of Laclede Gas Company's own exploration and development operations received a different regulatory treatment, I assumed that Laclede's shareholders received the profits and bore the losses from those operations as well. Mr. Liberman's letter has corrected that assumption. On the facts as stated in his letter, Laclede shareholders of course have no direct financial interest in the sale price of gas from Laclede Gas Company's own production.

Department of Energy
Washington, D.C. 20585

April 25, 1983

Mr. Charles A. Trabandt
Chief Counsel
Committee on Energy and
Natural Resources
United States Senate
Washington, D.C. 20510

Dear Mr. Trabandt:

On April 6, 1983, Secretary Hodel appeared before the Senate Energy and Natural Resources Committee to discuss the Administration's proposal on natural gas.

Following that hearing, we received written questions for response. The answers to those questions, with the exception of number 9, are enclosed. Please note that the Supplementary Analysis mentioned in our answer to question 1, and the Energy Information Administration Report referenced in questions 12 and 14 are not included. We will provide all these items under separate cover.

If you have any questions, please call Cathy Carey or Tom Pretorius of my staff on 252-4277. They will be happy to assist you.

Sincerely,

for Thomas H. Pretorius

Robert G. Rabben
Assistant General Counsel
for Legislation

Enclosure

QUESTIONS AND ANSWERS

resulting from

APRIL 6, 1983, HEARING

before the

COMMITTEE ON ENERGY AND NATURAL RESOURCES

UNITED STATES SENATE

WITNESS: SECRETARY HODEL

Minority Members
Senate Committee on Energy
and Natural Resources

Question 1: Please provide the Committee with copies of the studies to which you refer in your testimony that--

a. Show actual changes in old oil reserves and production resulting from decontrol of oil prices;

b. Show projected changes in old gas reserves and production resulting from enactment of S. 615; and

c. Show the projected functional effect of addition of old gas reserves on the price comparison for future years between continuation of existing law and enactment of S. 615.

Answer: The statements in Secretary Hodel's testimony regarding oil production and reserves after decontrol and the estimated supply response from deregulating old gas prices are based on DOE's study, "Supplemental Analysis of the Natural Gas Consumer Regulatory Reform Legislation", a copy of which will be provided during the week of April 25, 1983.

Question 2: Please provide the Committee with estimates of the changes in reserves for each year through 1990 in all NGPA categories under continuation of NGPA and under enactment of S. 615.

a. Show actual changes in old oil reserves and production resulting from decontrol of oil prices;

b. Show projected changes in old gas reserves and production resulting from enactment of S. 615; and

c. Show the projected functional effect of addition of old gas reserves on the price comparison for future years between continuation of existing law and enactment of S. 615.

Answer: a. Oil deregulation encouraged more investment in processes to increase reserve recovery from old oil fields. From 1977 through 1979, reserve additions from extensions to old reservoirs steadily declined. In 1980, the first year after deregulation began, extensions to old reservoirs were 570 million barrels, which was an increase of 150 million barrels above the amount added in 1979. In 1981, following immediate deregulation, reserve additions from extensions to old reservoirs amounted to 750 million barrels, an increase of about 180 million barrels above the 1980 level. In comparison, reserve additions from new field discoveries totaled above 140 million barrels in 1980 which was an increase of 35 million barrels from 1979. New field discoveries in 1981 were about 250 million barrels, an increase of 110 million barrels above the 1980 level. Thus, extensions of old reservoirs have contributed over 300 percent more in additions to domestic oil reserves since oil deregulation than have new field discoveries.

We do not have oil production data separated by old and new fields. However, since oil deregulation began in 1979, domestic production of petroleum liquids has remained constant and even risen a small amount. This contradicts many Government estimates of oil production that were made when deregulation of oil was under consideration. Although oil prices since deregulation have been lower than was assumed previously, domestic production is already 0.5 to 2.0 million barrels per day (b/d) above the levels that were generally forecast during the deliberations on oil deregulation.

b. The table below shows projected old gas (Section 104, 106) reserve additions and production under the NGPA and S. 615.

"OLD" GAS

	NGPA		S. 615	
	Production (bcf)	Reserve Additions (bcf)	Production (bcf)	Reserve Additions (bcf)
1983	7,984	0	8,504	0
1984	7,282	0	7,683	0
1985	6,791	0	6,989	875
1986	6,168	0	6,385	735
1987	5,578	0	5,820	615
1988	4,994	0	5,249	520
1989	4,442	0	4,693	435
1990	3,921	0	4,209	365

3.5 tcf

c. The Table below shows the average wellhead price of gas if NGPA is continued or S. 615 is adopted. Strong technical evidence indicates that there will be an old gas supply response under S. 615. However, the magnitude of this response is uncertain. For this reason, price effects under S. 615 are shown for two different alternate old gas reserve additions: 5, and 10 tcf.

Comparison of Average Domestic Wellhead Prices[1]
(1982 $/mcf)

	NGPA	S. 615 5 Tcf	S. 615 10 tcf
1982	2.67	2.67	2.67
1983	2.86	2.52	2.52
1984	3.02	2.87	2.87
1985	3.24	3.09	3.06
1986	3.59	3.50	3.46
1987	4.00	3.98	3.89
1988	4.18	4.13	4.09
1989	4.28	4.29	4.24
1990	4.39	4.44	4.37

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[1] Reference case assumptions.

Question 3: What is the net relative effect on production and reserves of enactment of S. 615 versus continuation of NGPA? Please provide a study showing the basis for your conclusion.

Answer: The table below illustrates the expected effect of NGPA and S. 615 upon future production and reserve additions:

	NGPA		S. 615	
	Production (bcf)	Reserve Additions (bcf)	Production (bcf)	Reserve Additions (bcf)
1983	14,688	14,511	15,445	13,925
1984	15,021	14,084	15,522	13,103
1985	15,321	13,567	15,486	13,274
1986	15,440	13,115	15,442	12,766
1987	15,468	12,638	15,366	12,465
1988	15,398	11,954	15,222	12,018
1989	15,174	11,295	14,960	11,621
1990	14,847	10,694	14,628	11,267

These estimated effects were taken from the DOE study, "Supplemental Analysis of the Natural Gas Consumer Regulatory Reform Legislation," to be released the week of April 25, 1983.

Question 4: Several witnesses have suggested that enactment of S. 615 would tend to lead to the recreation of a dual market for natural gas.

a. Do you agree or disagree?

b. Explain in detail the basis for your answer, including your estimate of the extent to which a dual market will emerge after enactment of S. 615, and for how long.

Answer: A dual market arose in the 1970's because interstate pipelines would only pay regulated prices, while intrastate pipelines could pay unregulated prices. Since the intrastate pipelines could pay more for gas, the interstate market could not secure supplies and shortages developed.

We disagree that S.615, by requiring FERC to approve the purchase gas costs of interstate pipelines that exceed pre-enactment levels plus inflation, will recreate a dual natural gas market.

S.615's purchase gas adjustment provisions are only in effect during the transition from the current regulated market to a deregulated market. During this period pipelines will bid for supplies based on their long-run expectation of supplies and demand for gas. Since pipelines and producers will be acting in their long run interests, we expect that interstate pipelines will be able to pay prices for gas that are competitive with intrastate prices.

Currently there is a large surplus of supplies in the gas market. Due to this surplus, all pipelines will have adequate supplies of gas during the transition period. S.615, if enacted, will also result in lower purchase gas costs for most pipelines. Due to the resulting lower gas costs, most interstate pipelines will have ample room to negotiate for new supplies without exceeding their pre-enactment purchase gas costs.

Furthermore, it is important to remember that increases above this adjusted allowed rate are not prohibited, as FERC can allow rate increases above that amount based on the reasonableness of the price and the need of the pipeline to acquire gas in order to provide adequate service to their customers. Accordingly, we do not believe that there is a possibility of a dual market arising.

Question 5: Please provide the Committee with a memorandum of law on the effect of enactment of the contract provisions of S. 615 on the rights and obligations of natural gas leaseholders and lessees. Consider Federal and Indian leases explicitly and provide such comment and estimates as are available about private leases.

Answer: In the time available the office of the General Counsel has reviewed the effect of enactment of the contract provisions of S. 615 on natural gas leaseholders. It has been concluded that S. 615 would have no direct impact on the leasehold. S. 615 could have an indirect impact, depending on the terms of the lease, the applicable law and the conduct of the lessor, the lessee, and other interested persons.

A gas lease constitutes a property right that authorizes an operator, the lessee or his assignee, to explore for and develop natural gas within the leashold. In return the lessor and other interest holders accept consideration, usually in the form of bonuses and royalties on the gas sold, and enjoy the protection of certain conditions, such as the requirement that the lessee diligently develop the leasehold. The lease may grant the lessee's right for a fixed term with or without a right of renewal or on a permanent basis. Modern leases typically contain a "habendum" clause that grants this right for a short primary term, from one to ten years. After this period the lease continues under a "thereafter" clause only if the lease is producing gas in paying quantities.

Should production be interrupted, the lease may terminate, depending on the circumstances, the lease provisions and the applicable law. Certain leases contain a shut-in royalty clause that clearly allows the lessee to retain his leasehold despite lack of gas production in paying quantities upon the payment of specified royalties. The Department of the Interior (DOI) administers leases on Federal and Indian lands pursuant to certain statutes and the regulations adopted under them. E.g., the Mineral Leasing Act of 1920, as amended, 30 U.S.C. §§181-287 (1976) (onshore leasing on federal lands); the Outer Continental Shelf Lands Act, as amended, 43 U.S.C. §§1331-43 (1976)(offshore leasing on federal lands); 25 U.S.C. ch. 12 (1976)(lease of allotted or unallotted Indian lands); 25 CFR Parts 211, 212, 30 C.F.R. ch. II; 43 C.F.R. Groups 3100, 3300. Federal and Indian leases are executed on forms approved by DOI, which have varied over time. Such leases provide for payment of royalties based on the value of the gas produced and in certain cases may be terminated for nonproducton of gas in paying quantities after the lease's primary term.

Federal regulation of natural gas under the Natural Gas Act (NGA) and the Natural Gas Policy Act (NGPA) has generally not extended to leasehold relationships. E.g., Mobil Oil Corp. v. F.P.C., 463 F.2d 256 (D.C. Cir. 1972), cert. denied, 406 U.S. 976 (1972) (royalty payment under gas leases are generally not subject to F.P.C. regulation pursuant to the NGA). S. 615. by restoring market forces to the sale of natural gas, would not extend regulation to the leasehold. Therefore the only possible effects of S. 615, on leaseholds would be indirect. Insofar as S. 615 would allow natural gas to be sold on terms different from those allowed under current law, lessees and lessors may realize greater or lesser returns on natural gas sales, depending upon their response to the free market. If a producer's sale contract were terminated after the required 45 days notice under section 303 of the bill, depending on the relevant lease provisions he may be compelled to seek renegotiation of the lease with the lessor or accept whatever price he can obtain for some of his gas in order to avoid the risk that nonproduction would terminate the lease.

DOI can furnish the Committee with further details on Federal and Indian leases. Private leases are governed by state law and are not generally filed with or reported to Federal agencies.

Question 6: Chairman Butler's testimony pertaining to S. 615 at both of the Committee's hearings leaves the distinct impression that he feels that the provisions of S. 615 limiting automatic passthrough of purchased gas costs will cause serious problems for some natural gas pipeline companies. He testified that, "pipelines are likely to find it extremely difficult to obtain full recovery even of purchased gas costs that are found to meet section 603's substantive standard. This inability may jeopardize the financial health of the pipeline involved."

He suggested two amendments to the provision. First, that the Commission be empowered to approve rates based on reasonable projections of future gas costs. Second, that pipelines be allowed to recover, in one way or another, legitimate purchased gas costs incurred before the Commission's final decision. Purchased gas adjustment filings in excess of the allowed rate would become effective subject to refund with interest. Costs in excess of the allowed rate would be scrutinized.

a. Do you agree with Chairman Butler's analysis, as reflected in his testimony? If not, please explain where you differ and why.

b. Do you support his proposed modifications to the passthrough provisions of S. 615? Why or why not?

Answer: (a) The Administration does not agree that pipelines will have difficulty recovering costs that are just, reasonable, and prudently incurred. As discussed in the Secretary's April 6 testimony to the Committee, the purchased gas cost limitation will not be a problem for pipelines generally because gas costs will decline on the whole if the Administration's bill is enacted. The examination of individual pipeline purchase costs provided in the testimony indicates that of the 20 largest interstate pipelines, covering 85 percent of the interstate deliveries, fewer than seven of these may need to apply for rate increase approvals from FERC. Since only a few requests for approval of gas cost increases are likely, we believe FERC will be able to review and decide on such requests expeditiously.

(b) The Administration does not disagree with either of Chairman Butler's first two proposed modifications: (1) that the Commission be empowered to approve rates based on reasonable projections of future gas costs; and (2) that pipelines be allowed to recover, one way or another, legitimate purchased gas costs incurred before the Commission's final decision. The Administration is, however, opposed to the proposed modifications that purchased gas adjustments filings in excess of the allowed rate become effective subject to refund with interest. We believe the purchased gas cost provision in the Administration's bill gives pipelines as well as producers a strong incentive to negotiate reasonable contract terms that reflect market conditions. The purchased gas cost limitation is based on the principle that it is essential to protect consumers from unnecessary price increases that may occur as the natural gas market moves from a structure that is heavily influenced by inflexible regulations to one that is not. During the transititon to a deregulated market, this provision will be crucial to ensuring that regulations will not influence contract terms in a way which prevents consumers from realizing the benefits of lower gas prices because of deregulation.

Question 7: Please provide the Committee with whatever data the Department has concerning sales of natural gas from producers of natural gas directly to electric utility and industrial users. If possible, please indicate--

a. Which producers sell directly to which users;

b. The volume of gas sold by each producer to each user each year for the last five years;

c. The wellhead price of the gas in each sale;

d. The contract terms governing each sale; and

e. The date of expiration of the contract governing each sale.

Answer: EIA has information on direct sales by producers but not in a format which easily responds to the detail requested. It must be noted that most of the data on direct sales are considered proprietary and can be released to the Committee for internal use only upon the request of the Chairman. EIA would be glad to meet with members of the Committee staff to discuss what is available.

Question 8: Some intrastate pipelines have testified that they face severe natural gas supply problems if the NGPA is not amended.

a. Do you agree that they face supply problems?

b. Please provide the Committee with any studies the Department of Energy has done to date on this issue.

Answer: To the Department's knowledge, intrastate pipelines are not facing many supply problems today. There is currently surplus gas deliverability among intrastate pipeline systems as well as interstate systems, but this is a result of current economic conditions rather than faulty intrastate pipeline agreements. Low oil prices and a depressed economy have decreased the demand for gas; shortages therefore are unlikely. Well deliverability is on the increase, despite declining intrastate pipeline reserve positions.

However, the arguments about competitive disadvantages in bidding for new supplies made by the intrastate pipelines are still valid. Long-run supply problems are very likely for intrastate pipelines under NGPA. Average gas acquisition costs for intrastate pipelines are above those of interstates. Intrastate pipelines do have less of a cushion. Their resulting competitive disadvantage has appeared in the past and should reappear after 1985. At that time decontrolled prices will be paid for over half the Nation's gas. By 1985 the economy will have recovered and the "surplus" disappeared. Most pipelines will again need new gas supplies and will have to compete and pay to get those supplies.

The Administration's bill, S. 615, will eliminate current bidding disparities between interstate and intrastate pipelines. Full renegotiation of gas contracts should eliminate the cushion and resulting distortions. Many provisions amend NGPA to provide equal legal access to offshore and other-State supplies.

At this time the Department does not have studies specifically examining the reserve positions and supply needs of intrastate pipelines. Much of the necessary data cannot be obtained by the Federal Government. We will continue to examine this important issue.

Q.9: During the past five years, to what extent have natural gas price increases for industrial and residential users been due to take-or-pay provisions in natural gas contracts?

A.9: Precise effects of take-or-pay provisions on end-use natural gas prices for the past five years are difficult to measure. Shifting market conditions and delays in the availability of current data prevent the calculation of exact results. However, using available data for the interstate market only, we have developed the following best estimates of the average price increases that have resulted from these effects.

TABLE 1

Estimated Increases in Natural Gas Prices
Due to Take-or-Pay Provisions[1]

Cause of Increase	Price Increase per mcf		
	1978-81	1982	1978-82
Prepayment liabilities	0.5¢	.5¢	1¢
Shut-in of old gas	6.0	19.0	25
Intrastate spillover	4.0	1.0	5
Demand reduction	---	3.0	3
Total price increase/mcf	10.5¢	23.5¢	34¢

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[1] 1978-81 effects are based on an extrapolation of measured 1981 effects. 1982 effects were estimated separately for an approximated one year period. All lagged effects that result from 1982 events are considered as 1982 effects. These results are for the interstate market only, which accounts for 60% of industrial and 90% of residential sales.

The Interstate Natural Gas Association has also produced an estimate of current take-or-pay costs. Based on information gathered in a survey of their members, INGAA concluded that natural gas prices would be reduced by 27¢/mcf in 1983 if take-or-pay limits were reduced to 50%. This compares favorably to our estimated 24¢ increase in natural gas prices in 1982 resulting from take-or-pay problems.[2]

Explanation of Results

Take-or-pay provisions only become a problem in a declining market, when demand reductions force pipelines to pay for gas that isn't taken. From 1978 to 1981, interstate natural gas consumption increased by approximately three percent per year. In 1981, contrary to market expectations, natural gas demand began to decline--by about 10% from 1981 to 1982, and by another 17% from 1982 to 1983.[3] In the last year and a half, conditions have reversed themselves so that now, excess supply rather than excess demand characterizes the market. DOE figures show surplus deliverability for natural gas of 1.5 trillion cubic feet (tcf) for 1982.[4] Other estimates have ranged from 1.0 to 2.5 tcf. These excess supply conditions have led to significant take-or-pay problems.

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[2] "The Gas Contracts Problem: Results of an INGAA Survey," May 1983, p. 7. Our estimate and the INGAA estimate are not directly comparable. The 27¢/mcf INGAA figure was obtained by comparing gas prices under high-case projections (i.e., price resulting from cheap old gas being shut-in) to low-case projections (i.e., price resulting from shut-in of highest cost gas). In contrast, we have compared high-case projections to reference prices derived from pipeline's projected purchase prices. This reference price is above that of the low-case projections; therefore, we would expect INGAA to report a slightly larger price difference due to take-or-pay problems.

[3] 1981-82 figures from Natural Gas Monthly, 1982-83 are INGAA figures for winter-to-winter periods. ("INGAA Survey on Components of Gas Price Increases," May 1983, p.4.)

In this analysis, take-or-pay effects have been averaged over the 20 major interstate pipelines. This moderates the results, as there are large variations in prepayment liabilities and shut-in costs among the 20 pipelines that are masked by the averages. Estimates of added costs for each pipeline from old gas shut-in, for example, range from 8¢ to 39¢, with nine of the 20 pipelines above the 19¢ average effect.[5]

Prepayment liabilities. Under take-or-pay clauses, pipelines are obligated to pay for contractually specified amounts of gas whether or not they accept delivery of that gas. These gas prepayments and associated interest costs are not immediately passed through to consumers, but are added onto the pipeline's rate base in its next rate case. Since consumers pay a rate of return on the entire rate base, rate of return charges are increased to include the added prepayment costs. This is not a dollar-for dollar pass through, however, as the rate of return is generally set between 15 and 20 percent (consumers are essentially paying the interest on money spent to hold gas until delivery).

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[4] DOE/PE-0046, Supplementary Analysis of Natural Gas Consumer Regulatory Reform Legislation, May 1983.

[5] PGA data taken from DOE/EIA-0357, "An Analysis of Post-NGPA Interstate Pipeline Wellhead Purchases," September 1982.

Once delivery has finally been taken on the prepaid gas, the amount of prepayment and subsequent additional charges for the gas are added into consumer prices through the Puchased Gas Adjustment (PGA) process. The amount of prepayment is then deleted from the rate base to reflect the fact that the purchase costs have been passed through.

The table below shows total gas prepayments for the 20 major interstate pipelines, as well as consumer costs from increased rate of return charges on those prepayments.

TABLE 2

Consumer Costs of Gas Prepayments[6] for 20 Major Interstate Pipelines

	1980	1981	1982	(Units)
Total Prepayments	224	317	748	million $
Consumer payments 20% rate of return (prepayments only)	44.8	63.4	149.6	million $
Sales for Resale	13.98	14.17	12.8	billion mcf
Consumer Costs	0.3	0.5	1.2	cents/mcf

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[6] Prepayment amounts were provided to DOE by FERC staff from review of pipeline tariffs in effect. Sales for resale figures are taken from the Natural Gas Monthly. Consumer payments are calculated by taking 20% of total prepayments. Since prepayment amounts are added onto previous totals, the consumer costs represent cumulative totals of consumer payments.

Estimated consumer costs totalled about half a cent through 1981, and slightly more than a cent through 1982. INGAA surveys have reported pipeline expectations of prepayment liabilities from 1982 to 1985 totalling several billion dollars, with the highest level occuring in 1983.[7/] Because prepayment costs are rolled in, however, the effects of very large liability increases on consumer prices in a given year are dampened considerably. A prepayment liability of 2 billion dollars in one year, for example, will only add about 3¢ to consumer costs.

Shut-in of old gas. During periods of market decline, there are strong incentives for pipelines to satisfy take-or-pay requirements by holding delivery of old gas first. Old gas is cheaper and it is generally subject to more flexible take requirements. The lower costs and take requirements of old gas minimize prepayment liabilities and associated carrying costs. The immediate effect of shutting-in old gas is to raise the average price of purchased gas, by removing the counterbalance that low old gas prices place on high cost gas. This average price increase is passed on directly to consumers through PGA mechanisms.

Data on purchased gas adjustments for 1981 sales show a 1.5¢ per mcf increase due to the shut-in of old gas.[8/] Data for 1982 sales has not been compiled; therefore, we have estimated shut-in effects based on available mid-1982 data of projected pipeline purchase costs.[9/] The difference between the projected volume weighted average price and the shut-in volume weighted average price for the

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7/ "The Gas Contracts Problem," p. 10.

8/ PGA data taken from An Analysis of Post-NGPA Wellhead Purchases (op. cit.).

9/ Ibid.

20 major interstate pipelines is 19¢.[10] Individual pipelines showed much greater differences in a number of cases. Cities Service and Consolidated, for example, showed estimated differences of 27¢ and 32¢, respectively. This suggests that the effects of take-or-pay problems may be particularly severe in some regions.

Intrastate spillover. The intrastate market has also experienced severe take-or-pay problems. Since interstate pipelines purchase gas from intrastate pipelines, take-or-pay problems at the intrastate level affect the prices of interstate gas by raising the average cost of purchased intrastate gas and hence the average cost of interstate gas. In 1981, interstate purchases of intrastate gas totalled about 1000 bcf, or 8.3% of total interstate purchases. In 1982, interstate purchases of intrastate gas totalled about 930 bcf, or 8.8% of total interstate purchases.[11] Assuming that take-or-pay problems in the intrastate market are comparable to those in the interstate market, intrastate spillovers would add

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10/ We have calculated the increase in gas prices that would result from a 15% decline in delivered gas, assuming that only old gas is held from delivery. Using mid-1982 PGA projections, we first calculated the volume weighted average price (reference price). Next, we subtracted 15% of total projected volume from just the section 104 and 106 projected gas volumes. We then recalculated the volume weighted average price and compared this price to the reference price. The difference represents how much average price would be expected to rise when low-cost gas is held from delivery at levels equal to the decline in consumption.

11/ Natural Gas Monthly, Table 23.

about 1¢ in each year to consumer costs.[12/]

Demand reduction. Increases in natural gas prices to consumers from take-or-pay effects will also reduce total gas demand. With a 21¢ increase in price from these take-or-pay effects, sales volume will be reduced by an estimated 1.8%.[13/] This in turn will increase average transmission and distribution costs, as these costs are allocated across smaller volumes of delivered gas. Price is estimated to rise by about 3¢ as a result.[14/]

[12/] Using equal take-or-pay effects of 19¢/mcf, the effects of intrastate spillover are calculated by multiplying the 19¢ by the total amount of intrastate gas purchased by interstate pipelines and dividing by the total gas sales volume in the interstate natural gas market. These calculations follow:
(19¢/mcf)(1000 bcf)/(15 tcf) = 1.3¢/mcf
(19¢/mcf)(930 bcf)/(15 tcf) = 1.2¢/mcf

[13/] A 21¢ price increase is equivalent to about 4.5% of total price ($4.61). Using a conservative short run price elasticity of demand equal to -.4, demand is estimated to be reduced by 1.8%.

[14/] Average interstate transmission and distribution margins were $1.50/mcf. These costs are not very sensitive to volume changes; therefore, the 1.8% volume reduction has been multiplied by the entire $1.50 to show how much average price would increase through the distribution of transmission and distribution costs across the smaller volume.

Question 10: You were asked previously to provide the projected supply and demand figures for natural gas for the next 5 years assuming that the Natural Gas Policy Act remains intact, and to provide those figures assuming the passage of S. 615 in 1983. Your reply was based upon an assumption that the price of oil slowly decreases from $34 (1982 dollars) in 1982, to a value of $31 (1982 dollars) in 1984, and thereafter the value of oil slowly increases.

a. Please submit a reply based upon the same assumptions used previously except an assumption that the price of oil decreased from $34 (1982 dollars) in 1982, to a value of $29 (1983 dollars) in 1983, and thereafter the value of oil stays constant.

b. Please submit a reply based upon the same assumptions used previously except an assumption that the price of oil decreases from $34 (1982 dollars) in 1982, to a value of $25 (1983 dollars) in 1983, and thereafter the value of oil stays constant.

Answer: The Department of Energy will soon release a Supplemental Analysis of Natural Gas Consumer Regulatory Reform Legislation" which examines S. 615, S. 689, and H.R. 2154 under the assumption that world oil prices are $25 (1983 dollars) in 1983, will remain the same in 1984, and thereafter increase at 1 percent per year. The supplemental analysis also examines these proposals under the assumption that oil prices are $33.66 (1982 dollars) in 1982, fall to $30.97 (1982 dollars) in 1984, and thereafter increase at 1 percent per year. By examining the effect of these proposals with assumptions of both higher and lower world oil prices, it will be possible to fully understand the effect these proposals would have on the gas market.

Question 11: You were requested previously to compare domestic gas supply under continuation of the NGPA vs. the Administration's bill for the years between now and the end of the decade (Minority Members, General Questions, Question 5). Your reply discusses the current delivery surplus. You said "the Department believes that the natural gas industry will continue to experience an excess of supply-to-consumption for a number of years." Your projections stopped at 1984. Please provide the information originally requested, and the analysis upon which those projections are based.

Answer: Table 1 compares expected domestic supplies under the NGPA with supplies if the Administration's bill is enacted. These estimated effects were taken from the DOE study, "Supplemental Analysis of the Natural Gas Consumer Regulatory Reform Legislation," to be provided the week of April 25, 1983.

Table 1

	NGPA		S. 615	
	Production (bcf)	Reserve Additions (bcf)	Production (bcf)	Reserve Additions (bcf)
1983	14,688	14,511	15,445	13,925
1984	15,021	14,084	15,522	13,103
1985	15,321	13,567	15,486	13,274
1986	15,440	13,115	15,442	12,766
1987	15,468	12,638	15,366	12,465
1988	15,398	11,954	15,222	12,018
1989	15,174	11,295	14,960	11,621
1990	14,847	10,694	14,628	11,267

Table 2 shows expected excess deliverability under a continuation of the NGPA and enactment of S. 615.

Table 2

Expected Excess Supplies of Gas
(tcf)

	1982	1983	1984
NGPA	1.4	0.771	0.225
S. 615	1.4	0	0

Question 12: You were requested previously to have the EIA project what the gas cap price will look like (Minority Members, Sec. 203 Questions, Question 2). Your reply indicated that EIA has been "briefed" on the assumptions used in the Department's February 28 study. Please provide an EIA projection of the gas cap price for the years it would be in effect if S. 615 were enacted. Specify the assumptions used.

Answer: This information is presently being developed and will be contained in an EIA study to be released in May.

Question 13: You were requested previously to provide an analysis of the personnel EIA and FERC would need to administer the passthrough mechanism and the gas cap price mechanism (Minority Members Questions, Sec. 203, Question 5). You replied that you are in the process of completing a detailed assessment. Please provide the assessment, or indicate when such an assessment will be available.

Answer: In preparing S. 615, we considered the potential administrative impact of the entire bill on FERC and other parts of DOE. Some parts of the bill, like the purchased gas cost provision, probably will involve increased administrative efforts. Other provisions, like the repeal of incremental pricing and Fuel Use Act provisions will involve decreased administrative efforts. We believe that there will be a balancing effect on staffing in the Energy Information Administration and that no further staffing will be required. FERC is currently assessing the effects of S. 615 on staffing and has provided us with the enclosed preliminary evaluation. We are involved in a similar process and will provide our assessment to you within the next two weeks.

FEDERAL ENERGY REGULATORY COMMISSION
WASHINGTON, D.C. 20426

APR 21 1983

Honorable Donald Paul Hodel
Secretary of Energy
U.S. Department of Energy
Washington, D.C. 20585

Dear Mr. Secretary:

In response to your request for information about the impact of S.615 on FERC operations--i.e., what additional resources the FERC would need to implement this bill--I am providing you with the following information:

- Enclosure A is an outline of preliminary assumptions I have made about the bill.
- Additional personnel resources needed would be minimal if our FY 1984 budget request of $94.6 million is approved.
- An additional $2.5 million in FY 1984 would be needed for contractual work and travel pay. I estimate costs to be $1 million for EIA support, $1 million in contractual support for analysis and modeling, and $0.5 million in travel pay for FERC auditors.

I will of course keep you informed as our analysis of this bill is refined and further developed.

Sincerely,

for C. M. Butler III
Chairman

Ex Director

Enclosure

Preliminary

1983

Assumptions

- Legislation enacted in May 1983.
- Few contracts renegotiated for remainder of fiscal year.
- Existing producer staff will be required to process present workload.
- Certain pipelines will exercise option to reduce take-or-pay gas which will result in claims of drainage and jeopardy to correlative rights.
- Rulemaking will be required to prescribe filing requirements and procedures to implement gas cap. Interim rule will probably be required.
- There should be little impact upon jurisdictional agency determinations during remainder of fiscal year. Agencies will likely continue to nominate formations for incentive prices.
- As pipelines exercise option to reduce take-or-pay purchases there will be increased emphasis upon transportation arrangements as effected producers attempt to market the gas elsewhere. There will be increased need to determine the availability of excess pipeline capacity.
- Pipelines would file their average cost of purchased gas for the month of April by June 15, 1983, rather than the 5 days included in the draft bill.
- Commission would have the flexibility to utilize its existing PGA regulations, including the use of deferred accounting, in lieu of monthly adjustments.
- PGA filing requirements could be expanded to provide the information necessary to make the determinations required under Section 603(b); legislation could be amended to provide the authority to impose expanded filing requirements.
- It would be possible to dispose of majority of PGA filings through the use of informal procedures that rely upon technical conferences to reduce differences or controversy.
- Sufficient staff would be available to handle formal PGA proceedings on a concurrent basis so that no longer than 6 months would be required from filing to Commission disposition.
- Language in draft bill is amended to clarify the treatment of company-owned and affiliate production. Present bill would not distinguish between categories of production and therefore differences in price.

Preliminary

1984

Assumptions

- Most wells drilled during the year will not be subject to the certificate and rate filing requirements of NGA.
- Manpower will still be required to process workload carried over from FY-1983.
- There should be no more special relief and Order No. 23 protect proceedings.
- Fewer than half of presently effective contracts will be renegotiated in FY-1984, therefore, certificate and rate filings will continue to be received. There is not sufficient personnel available to renegotiate all contracts even if desired by sellers and purchasers.
- There is a backlog of determinations pending before jurisdictional agencies. These will have to be processed by Commission to determine price eligibility as well as refund obligations.
- Fewer determinations should mean fewer determination audits.
- Pricing audits will become more important due to need to audit data filed and used to compute gas cap.
- As pipelines exercise option not to take gas in excess of 70% of deliverability, claims of drainage or jeopardy to correlative rights can be expected.
- As gas is released under take-or-pay arrangements, staff will be required to review transportation arrangements, particularly the availability of capacity.
- Expansion of Title III of the NGPA to cover transactions by local distribution companies (LDC's) will require increased effort.
- As contracts are renegotiated, the average cost of gas to most pipelines can be expected to increase. The resulting PGA filings will require expedited treatment. Sufficient resources must be available to handle the filings on a concurrent basis.
- It is contemplated that majority of filings can be handled through informal conferences.
- Certain of the filings will require formal proceedings and extensive effort will be required to evaluate data, including the purchase of company-owned and affiliate production.

Preliminary

1985

Assumptions

- During the course of the year NGA contracts will be renegotiated or producers will exercise market-out provisions.
- There will continue to be some NGA filings during the year.
- All NGA filings, both receipts and carry-overs, should be disposed of during the year.
- All jurisdictional agency determinations should cease except for Section 107(c)(5) production and this may cease depending upon Commission action on the pending rulemaking.
- Refund activities will continue related to prices collected for prior periods under the NGPA.
- Pricing audits will continue related to the data used to compute the gas cap. Also, that prices collected are consistent with the gas cap.
- As producers exercise market-outs there will be greater emphasis upon obtaining transportation arrangements. Availability of pipeline capacity will become important activity.
- As producers exercise market-outs special attention will be paid to ability of individual pipelines to meet their long-term market requirements.
- As producer prices move toward market levels some pipelines should be able to stabilize purchased gas costs; perhaps at lower levels, while others will experience increases in their cost of gas. These latter pipelines will file PGA rate changes which will require prompt action by the Commission.

Department of Energy
Washington, D.C. 20585

May 25, 1983

Mr. Charles A. Trabandt
Chief Counsel
Committee on Energy and
Natural Resources
United States Senate
Washington, D.C. 20510

Dear Mr. Trabandt:

On April 6, 1983, Secretary Hodel appeared before the Senate Energy and Natural Resources Committee to discuss the Administration's proposal on natural gas.

Following that hearing, we received written questions for response. On April 25 and May 10, 1983, we provided partial responses. As we indicated in our April 25 response to Question 13, an assessment of the potential administrative impact of enactment of S. 615 would be forthcoming. That assessment is enclosed.

If you have any questions, please call Cathy Carey or Tom Pretorius of my staff on 252-4277. They will be happy to assist you.

Sincerely,

Thomas H. Pretorius
for Robert G. Rabben
Assistant General Counsel
for Legislation

Enclosure

MANPOWER IMPACT ASSESSMENT OF S.615 ON THE ENERGY INFORMATION ADMINISTRATION

The present assessment is that the Federal Energy Regulatory Commission (FERC) would task the Energy Information Administration (EIA) to produce a Monthly Publication of Gas Cap Data and a one-time report on the Average Cost of Gas Contracts 30 days prior to the implementation of the bill. The latter can be handled by requiring a one-time standardized report filed with EIA, with the necessary backup material attached as supplemental information.

The work involved to produce the new monthly gas cap data publication will involve ADP systems development, actual programming of the system and monthly publication of the report by EIA. It is anticipated that these tasks would be done by an EIA contractor and would not involve federal staffing except in an oversight role.

Currently EIA produces a Monthly Alternate Fuel/Incremental Price Monitoring report for FERC which would not be produced if S.615 becomes law. Based on the workload requirements to support the FERC, as known at this time, there would be a trade-off in terms of federal manpower requirements and no additional federal staff would be required by EIA.

Question 14: Please provide an EIA analysis of the effect S. 615 would have on the Nation's natural gas industry, including reserves, supplies, first sale prices, prices paid by industrial users, and prices paid by residential users, from now through the end of the decade. if such an analysis is not available, please indicate when it will be.

Answer: This information is presently being developed and will be contained in an EIA study to be released in May.

Minority Members
Senator Howard M. Metzenbaum

Question 1: One of your assertions is that the gas industry is competitive. The basis of your conclusion appears to be the number of gas producers, a number which appears to include royalty owners as well as working interests. It seems to me that there is more to the question of competition than the number of producers, and I would expect that your conclusions regarding competition in the gas industry would be based on considerable analysis, analysis which would examine among other issues the dimensions of the relevant markets and barriers to entering those markets. I would expect such a study to consider the implication of vertical integration and pipeline economics in the gas industry as well as the wasting nature of gas a commodity. I would expect the study to be current. I would not expect that study to draw loose analogies to the oil industry.

I would be especially interested in this study because you are telling this Committee and the consumers of America that its analysis and conclusions are correct and reliable. Accordingly, I ask that you provide the Committee with any studies you are relying on for your assertion that the gas industry is competitive.

Answer: The Department of Energy has considered the competitive implications of the Administration's bill in addition to the data cited in recent testimony, analyzing the general effects on the competitive process. Sources of information include the Federal Trade Commission's (FTC) staff report on the natural gas industry, Staff Report of the Bureau of Economics to the Federal Trade Commission, Economic Structure and Behavior in the Natural Gas Production Industry, February 1979.

The FTC report concludes that the industry would be workably competitive in the absence of Federal price regulations.

Our analysis focused on two aspects of the industry, namely, the potential for increased competition in end-use markets and the potential for entry into the purchasing of natural gas from the producer. The analysis indicates that additional supplies of natural gas will increase competition among fuels in end-use markets. Increased competition among fuels should exert downward pressure not only on natural gas prices but on all energy prices. In addition, the contract carriage provisions of the Administration's bill will expose producing markets to more buyers and offer more potential sources of gas to buyers, other than just local pipeline sellers. Thus the influx of more buyers into more markets should broaden present natural gas markets into regional markets or a national market.

Minority Members
Senator Howard M. Metzenbaum

Question 2: One theme you often come back to in your testimony is that there is old gas out there which will not come to market without decontrol.

Let me remind you what old gas is. According to the statute, it is gas which was committed or dedicated to interstate commerce before the NGPA was enacted. It is gas which as of 1978 was discovered, flowing, and under contract to be sold. Further the FERC has the authority to raise the price for the various old gas categories, if those increases are just and reasonable. In addition, gas from stripper wells and production enhancement wells is now priced at about $3.60, a price which is above the price which you have said is the market-clearing price.

With this in mind, would you identify the additional old gas that will be brought to market if wellhead price ceilings are removed?

Answer: You correctly state that according to the NGPA old gas is gas that was committed or dedicated to interstate commerce before the NGPA was enacted. It is gas that forever receives a regulated price; that price now ranges from as low as 28 cents to no more than $2.28 per mcf. There are a number of ways that old gas can receive a regulated special incentive price. These are as follows:

(1) If an old gas reservoir is abandoned (which requires FERC approval) and the well capped, the reservoir can be reentered by drilling a costly new well and the old gas will receive a section 103 price.

(2) If the old well penetrates a reservoir in a tight formation, the well can qualify for a Section 107(C)(5) price.

(3) If a costly new well is drilled on an old gas reservoir and satisfies applicable Federal or State well-spacing requirements and is not within a proration unit, that well can apply for a Section 103 price.

(4) Finally if the production rate from an old well falls so low that only 60 mcf/day is being produced it can qualify for a Section 108 stripper price. It is important to note that the filing must certify that for the previous 12 months it was producing at its maximum rate and that this rate was low enough to become a stripper well.

Accordingly, old interstate gas will receive a price higher than allowed under Sections 104 and 106 of the NGPA only if the wells

Minority Members
Senator Howard M. Metzenbaum

Question 3: I would like you to focus on what the old gas cushion is. It is gas that can be produced cheaply. It is gas which is now being produced profitably at prices ranging from as low as 28 cents, and no more than $2.28 per mcf. What you have told the Committee is that consumers are now getting no benefit, no savings, from the low cost of producing this gas, because the pipeline companies spend this savings, this cushion, by paying high prices for decontrolled gas.

I don't disagree that the consumer is not seeing the benefits of this cheap gas. But your recommendation is that the consumer should give up on the gas cushion, that Congress should refrain from securing this cushion for the consumer. Your recommendation in favor of decontrol essentially gives the cushion to producers.

Are you saying that the Administration can conceive of no plan which preserves the ceilings on this cheap gas, which assures that the benefits of the cushion are passed through, which simply prevents the pipelines from spending the cushion imprudently?

Answer: Currently the price that "new" and decontrolled gas receive under the NGPA far exceeds the price of alternative fuels. The reason that this can occur is because pipelines, by virtue of their supplies of inexpensive, old gas and their ability to average together the cost of all gas, can pay high prices for newer supplies and remain competitive with alternative fuels. At present it is not the consumers that reap the benefits of inexpensive, price controlled gas but rather those producers of new and deregulated gas supplies. Under the NGPA this will continue to be the case.

Regulations in the past tried to guarantee that consumers would receive the benefits of low cost supplies by mandating lower prices. Consumers did receive low priced gas, but they also suffered shortages. These shortages occured because it was not possible to explore for new gas at the low, regulated prices. The shortages were more costly to the Nation than moderately higher gas prices since they forced changes in capital equipment in industries and utilities that were denied gas and forced higher consumption of foreign oil. In brief, attempts to legislate that the benefits of low cost gas be transferred to consumers have failed either because they caused shortages or actually caused above market prices.

The Administration bill assures that consumers will benefit from the Nation's reserves of old gas through a mechanism that relies upon market-principles rather than efforts to mandate lower prices. The key elements producing this effect are: (1) allowing old gas reserves to gain a higher price than current law allows, thereby insuring that the current excess gas deliverability, estimated to range from 1.4 to 3.0 tcf, will move to the market immediately, and providing the incentive to work over old gas fields and add to low-cost reserves; (2) the reduction in obligatory take-or-pay requirements, allowing pipelines to reduce excessive takes of high-cost gas without being penalized by FERC; (3) the establishment of a gas cap that forces "new" gas prices to better reflect market forces; and (4) eliminating the automatic passthrough of purchased gas cost increases above the rate of inflation. This approach provides greater benefits than current law.

Minority Members
Senator Howard M. Metzenbaum

Question 4: I want to explore your assertion that the NGPA, combined with contract clauses, are causing high consumer prices. If the price of gas is sensitive to the price of oil, which you say it is, prices should come down whether or not price ceilings have been imposed.

There is nothing which prevents the industry from taking prices below the ceilings. The industry has the power to get rid of prices which are too high. They haven't done so, so it would appear to me that price escalation clauses are the real problem. Is it not true that if there were no price escalation clauses, the average price of gas would not be higher than oil, whether ceilings were in effect or not?

Answer: Although price escalation clauses contribute to sustained high gas prices, they are not the total problem. Even if all price escalation clauses were abrogated, there are several provisions in the NGPA that would work to keep gas prices above market clearing levels. For example, the high take or pay contract provisions for high priced gas that were written in reference to enactment of the NGPA, would continue to keep gas prices above market clearing levels during periods of excess gas supply.

Regardless of price escalation clauses, current law provides a market that is partly regulated and partly deregulated; and this circumstance continually will lead to some gas prices being bid-up above market clearing in order for pipelines to insure supplies. Since oil prices are deregulated, the only way to insure that average gas prices do not rise above oil prices is to place new controls on gas; and this will also insure curtailments when gas prices are held below market levels.

Under the NGPA, pipelines have little incentive to reduce the prices they pay for gas, because FERC rules make it quite easy for them to pass those costs along to consumers as a PGA increase. Further, neither pipelines nor producers would have an easy time explaining to shareholders why one or the other unilaterally decided to drop prices to the detriment of profit margins, particularly if this is not accomplished in some uniform manner throughout the gas industry.

The Administration bill provides both the impetus and the vehicle for assuring the rationalization of the gas market to the least cost mix of supplies. It forces both producers and pipelines to renegotiate contracts in a competitive price environment, a condition that offers the best possible circumstance for consumers.

Department of Energy
Washington, D.C. 20585

May 10, 1983

Mr. Charles A. Trabandt
Chief Counsel
Committee on Energy and
Natural Resources
United States Senate
Washington, D.C. 20510

Dear Mr. Trabandt:

On April 6, 1983, Secretary Hodel appeared before the Senate Energy and Natural Resources Committee to discuss the Administration's proposal on natural gas.

Following that hearing, we received written questions for response. On April 25, 1983, we sent you a partial response to those questions. Enclosed is the "Supplemental Analysis of the Natural Gas Consumer Regulatory Reform Legislation", which completes our answer to question 1.

If you have any questions, please call Cathy Carey or Tom Pretorius of my staff on 252-4277. They will be happy to assist you.

Sincerely,

for Thomas H. Pretorius
Robert G. Rabben
Assistant General Counsel
for Legislation

Enclosure

cc: All Members of Senate Energy
and Natural Resources Committee

Mr. Mike Harvey
Chief Counsel for Minority

Mr. Al Astrin
Committee Staff

SUPPLEMENTAL ANALYSIS OF NATURAL GAS CONSUMER REGULATORY REFORM LEGISLATION

U.S. Department of Energy

May 6, 1983

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EXECUTIVE SUMMARY

PURPOSE

This paper is supplemental to the Department of Energy's February 28, 1983, study entitled "Analysis of Natural Gas Consumer Regulatory Reform Legislation." This supplemental analysis was undertaken to show the energy and price effects of natural gas reserve additions attributable to deregulating the price of old gas. This paper includes a comparison of the energy and price effects of the Natural Gas Policy Act (NGPA) and the Administration's natural gas bill (the Natural Gas Consumer Regulatory Reform Amendments of 1983, S.615), as well as an analysis of two other recent legislative proposals on natural gas: H.R.2154, introduced by Representative Gephart, and S.689, introduced by Senator Heinz.

CURRENT PROBLEMS UNDER THE NATURAL GAS POLICY ACT

Since its passage in 1978, the Natural Gas Policy Act has distorted the domestic gas market in three important ways:

1. Forcing consumers to pay increasing prices for natural gas despite a growing surplus

2. Providing incentives for pipelines to purchase a high-cost mix of gas supplies, thereby denying consumers the full benefit of currently available low-cost gas
3. Reducing the incentive to maximize the economic production of low-cost gas from existing fields

In this supplemental analysis, special attention is devoted to this third market distortion caused by the NGPA. By artificially holding the price of old gas below market levels, the NGPA would deny consumers the benefit of 5 trillion to 10 trillion cubic feet of low-cost, old gas reserves. In contrast, the Administration's bill, by deregulating old gas prices, will enable gas producers to produce this additional gas using well-known recovery techniques.

EFFECTS OF THE ADMINISTRATION'S BILL

Within 1 year after enactment of the Administration's bill, average wellhead and retail gas prices should decline by 15 cents to 35 cents per thousand cubic feet. The actual decline in gas prices will depend on future oil prices; and this analysis used two price paths, a high and a low, which bracket current price activity (see Appendix I). During the same period, gas prices under the Administration's bill should be 30 cents to 45 cents per thousand cubic feet--that is, 7 percent to 11 percent lower than prices would be under the NGPA.

After their initial decline, average wellhead and retail gas prices will rise and gradually approach the price levels that would otherwise prevail under the NGPA. If old gas reserve additions are 5 trillion cubic feet, gas prices under the bill should reach NGPA price levels by about 1987 and remain comparable with NGPA prices thereafter. On the other hand, if old gas reserve additions are 10 trillion cubic feet, gas prices would remain below NGPA prices through 1995. This analysis leads to the conclusion that old gas reserve additions of about 10 trillion cubic feet are the more likely case, and potentially could be somewhat higher.

Another important effect of the Administration's bill would be to reduce oil imports. Lower domestic gas prices and higher production as compared to the NGPA would reduce oil imports by 250,000 to 350,000 barrels per day during the first year. In the second year after enactment, oil imports would be 150,000 to 160,000 barrels per day less than under the NGPA.

EFFECTS OF H.R.2154 AND S.689

H.R.2154 and S.689 would lower regulated prices below NGPA ceilings. Both bills would provide gas consumers with near-term relief from high prices but would cause gas shortages and encourage large increases in expensive gas imports in the years ahead. H.R.2154 would cause shortages of 0.6 trillion to 1.1 trillion cubic feet in 1984; and, in 1985, it would require the United States to import 1 trillion cubic feet more gas than would be the case under the Administration's bill. S.689 would cause shortages of 0.9 trillion to 1.4 trillion cubic feet in 1984; and in 1985, it would require imports of as much as 0.7 trillion cubic feet more gas than would be the case under the Administration's bill. In the past, similar shortages of natural gas have caused factory shut downs and have imposed enormous costs on the U.S. economy.

The price regulation provisions of these two bills also would deny consumers the benefit of 5 trillion to 10 trillion cubic feet of low-cost, old-gas reserves. Under regulation, these reserves are not economic to produce and would be left in the ground forever. By subjecting more gas to price controls, both bills set the stage for extending price controls indefinitely.

I. PURPOSE

This paper is supplemental to the Department of Energy's February 28, 1983, study entitled "Analysis of Natural Gas Consumer Regulatory Reform Legislation." This supplemental analysis was undertaken to show the energy and price effects of natural gas reserve additions attributable to deregulating the price of old gas. The results also reflect minor technical refinements to the modeling approach used in the February 28 study.[1] This paper includes a comparison of the energy and price effects of the Natural Gas Policy Act (NGPA) and the Administration's natural gas bill, as well as an analysis of two other recent legislative proposals on natural gas: H.R.2154 and S.689.

II. CURRENT PROBLEMS UNDER THE NATURAL GAS POLICY ACT

Since its passage in 1978, the Natural Gas Policy Act has distorted the domestic gas market in three important ways:

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[1] The technical refinements and major assumptions used in this paper and the earlier report are described in detail in Appendix I.

1. Forcing consumers to pay increasing prices for natural gas despite a growing surplus
2. Providing incentives for pipelines to purchase a high-cost mix of gas supplies, thereby denying consumers the full benefit of currently available low-cost gas
3. Reducing the incentive to maximize the economic production of low-cost gas from existing fields

The Administration's bill, the Natural Gas Consumer Regulatory Reform Amendments (S.615), is designed to alleviate each of the major distortions caused by the NGPA. The rest of this section is devoted to a brief description of these three market distortions.

The NGPA allows gas prices to rise steadily even when market conditions dictate that prices should be falling. Prices are continuing to rise under the NGPA despite reduced demand, falling oil prices, and a growing surplus of natural gas. The 1982 surplus of deliverable natural gas supplies was estimated to be between 1.5 trillion and 2.7 trillion cubic feet.[2] Nonetheless, from the middle of 1981 to the middle of 1982, the prices industrial users paid directly to interstate pipelines rose from $3.06 per thousand cubic feet to $3.66 per thousand cubic feet, or 20 percent.[3] From 1981 to 1982, the volume weighted average residential price rose from $4.29 per thousand cubic feet to $4.96 per thousand cubic feet, or 16 percent.[4] In the last half of 1982, residential prices appear to have been rising at an even faster rate.

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[2] Low estimate based on DOE projections derived from the two-market evaluation system. High estimate from the American Gas Association, Natural Gas Production Capability--1982, December 1982.

[3] Natural Gas Monthly, January 1983, page 29, June 1981-1982.

This anomalous situation of rising prices in a soft market is a result of the NGPA. In response to the gas shortages of the mid-1970's and the provisions of the NGPA (as well as other regulations), virtually all post-1978 gas contracts entitled producers to the highest allowable prices. These are the NGPA ceiling prices, which are allowed to rise at or above the rate of inflation. NGPA ceiling prices do not reflect current market conditions, yet they determine prevailing prices because of the way they have been incorporated into contracts.

Although take-or-pay provisions in natural gas contracts are common, the standard rate before the NGPA was low enough that liabilities for undelivered gas were almost never incurred. After the NGPA was enacted, take-or-pay requirements as high as 95 percent became more common. However, pipelines are not permitted to pass through immediately the cost of gas that has been paid for but not delivered to consumers. Therefore, a growing amount of old, low-cost gas is being shut in as pipelines attempt to adjust to falling demand and minimize the cost of take-or-pay requirements. The reduction in the proportion of low-cost supplies available to consumers causes gas prices to continue to rise, which, in turn, reduces demand even more.

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[4] Preliminary DOE volume-weighted estimate based on data from the Monthly Energy Review, March 1983, page 97, adjusted to be consistent with the Natural Gas Annual.

Recent purchased gas adjustment (PGA) filings by interstate pipeline companies illustrate the problem. Table 1 shows the percentage reduction of projected purchases of low-cost gas and projected increases of high-cost gas production during 1982. The difference between the third and second columns for old gas (392 bcf) indicates that pipeline companies projected that they would be shutting in from 300 billion to 500 billion cubic feet of old gas at the end of 1982.

Table 1

Summary of Recent Interstate PGA Filings[a]
(bcf)

	Mid-1982	Less 8%, Half-Year Decline	Late 1982-Early 1983	Change	
Old Gas (Sections 104, 106)	5,817	5,352	4,960	-857	-15%
New Gas (Sections 102, 103, 108, 109)	3,825	N/A	3,911	+86	+3%
High-Cost Gas (Section 107)	664	N/A	886	+222	+33%

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[a] EIA March 1, preliminary data. Projections for 20 major interstate pipeline companies accounting for 85 percent to 90 percent of interstate sales. Filing period is 6 months, but filings are staggered; so actual 6-month period varies by pipeline.

In addition, as of December 31, 1982, pipeline companies who did not take the minimum delivery required by their take-or-pay obligation (and thereby paid for gas that was not delivered) paid an average price of $1.42 per thousand cubic feet.[5] This low average price further confirms that most of the shut-in gas is old interstate gas (Sections 104 and 106).

The problems caused by the NGPA are not limited to the current surplus of deliverable gas supplies. Under the NGPA, about 40 percent of the Nation's proved, producing gas reserves will remain under price controls in 1985. By 1990, more than 20 percent of the Nation's reserves will still be under price controls, a condition that will reduce the incentives of producers to maximize the economic production of old, low-cost gas. Indeed, the two most significant market distortions caused by the NGPA are the result of continued price controls on old gas. First, price controls on old gas subsidize excessive expenditures of the Nation's economic resources on high-cost domestic gas and imports, and cause inequitable disparities in gas prices between regions. Second, price controls on old gas will cause at least 5.0 trillion to 10.0 trillion cubic feet of the Nation's old gas reserves to remain in the ground forever.[6]

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[5] See Table A, page 1 of Testimony of C. M. Butler III, Chairman of FERC, before the House Energy Subcommittee on January 27, 1983.

[6] Appendix II describes the technical evidence that supports the estimate of 5.0 trillion to 10.0 trillion cubic feet.

III. ENERGY AND PRICE EFFECTS OF THE NATURAL GAS POLICY ACT

Table 2 presents the energy and price effects of the NGPA. These estimates were made using the high oil price assumptions described in Appendix I. Under the NGPA, average gas prices will continue to rise under the NGPA despite a surplus of deliverable supply through 1984. During this period, producers are assumed to be willing to reduce minimum take-or-pay requirements, but to be unwilling to renegotiate contract price terms at below-ceiling prices for specific categories of gas.[7] Producers would behave this way to maintain favorable price terms in existing contracts if they expect the current surplus to be temporary.

Table 2 shows that if the NGPA remains in effect the residential and commercial demand for gas will decrease slowly from current levels in response to rising gas prices. In the industrial sector, however, higher economic activity results in steadily growing industrial gas consumption after 1984. Utility consumption of gas also increases, but much more slowly than in the industrial sector.

In 1985, the NGPA provides for the decontrol of most "new" gas, but leaves price controls on "old" gas. When partial decontrol occurs in 1985 under the NGPA, about 43 percent of domestic gas production in that year remains under price controls. If world oil prices stay within $1 to $2 of present levels, there should not be a sharp increase in gas prices in 1985, even if gas demand increases moderately and the current surplus of deliverable gas disappears. Following partial decontrol under the NGPA, however, pipeline companies will continue to pay high prices for deregulated gas because of their continuing supplies of cheap regulated gas. Thus, NGPA price controls on old gas will continue to subsidize the purchase of expensive deregulated gas.

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[7] This assumption results in somewhat lower prices under the NGPA than would be the case were it assumed that producers would rigidly adhere to and legally enforce all contract terms.

Under the NGPA, average prices rise at about 7 percent to 11 percent per year above the rate of inflation through 1990 because of the depletion of old price-controlled gas supplies, the purchase of more expensive deregulated supplies, and the increase in alternative fuel prices. Also, because the majority of the Nation's residential customers are in the interstate market and because that market experiences more rapid increases in gas costs than the Nation as a whole, average residential gas prices should rise faster than gas prices in other sectors of the economy.

As late as 1990, a substantial quantity of gas--about 20 percent of all domestic proved, producing reserves--will remain price controlled. Price controls discourage production of low-cost gas and encourage inefficient allocation of the Nation's resources through the production of more expensive gas.

IV. THE ADMINISTRATION'S NATURAL GAS BILL (S.615)

The Administration's bill eliminates the three major deficiencies of the NGPA. The bill encourages the renegotiation of existing contracts to reflect market conditions, thereby providing a transition to a deregulated market. The gas cap provision eliminates the upward price pressures caused by the NGPA-regulated prices. The take-or-pay limitations reduce obligations that encourage the shutting in of cheap supplies and the production of more expensive supplies. The market-out provision and deregulation of all new and renegotiated contract prices will stimulate the production of additional supplies of old, low-cost gas that would never be produced under the NGPA. These provisions would eliminate the old gas "cushion" and give pipeline companies an increased incentive to obtain least-cost sources of gas first, purchasing more expensive reserves only as demand warrants.

Old Gas Supply Response

In the February 28 report, we assumed that old gas deregulation would accelerate old gas production but would not increase the ultimate recovery of old gas reserves. We recognized that this assumption was overly conservative, and since February 28, we have carefully studied the old gas supply question. Our findings, which are described in Appendix II, indicate that deregulation of old gas prices will add at least 5 to 10 trillion cubic feet to the Nation's supply of old gas, and reserve additions could be somewhat higher. These reserve additions occur because deregulation extends the life of old gas wells. It enables gas producers to employ a number of well-known engineering operations (fracturing, acidizing, sand control, and other stimulation techniques) that increase production and ultimate gas recovery.

As described in Appendix II, there also would be an old gas supply response due to infill drilling under S.615. We do not yet have sufficient information to estimate the magnitude of that response, but it could be just as large as the response from extending the lives of old gas wells.

We have chosen to present cases of 5 trillion cubic feet and 10 trillion cubic feet of old gas reserve additions in this analysis because we are extremely confident that the old gas supply response will be at least in that range.

Five Trillion Cubic Feet of Old Gas Reserve Additions

In 1983, using high oil price assumptions, the Administration's bill would cause national average wellhead prices to decline by 15 cents per thousand cubic feet from 1982 levels (see Table 3). The decline in prices would be caused by two factors. First, the reduction in obligatory take-or-pay levels decreases the production of expensive gas and increases the production of low-cost, shut-in gas. Second, the prices agreed

Table 2

Projected Prices and Quantities of Natural Gas with the NGPA[a]
(High Oil Price)

	1982	1983	1984	1985	1986	1987	1990	1995
Gas Prices (1982 $/mcf)								
Average domestic wellhead	2.67	2.86	3.02	3.24	3.59	4.00	4.39	5.42
Residential	4.96	5.14	5.27	5,43	5.80	6.19	6.60	7.67
Industrial	3.68	3.82	3.96	4.25	4.62	5.02	5.38	6.36
Reserve Additions (bcf)[b]								
Section 104 and 106	0	0	0	0	0	0	0	0
Other	15,038	14,511	14,084	13,567	13,115	12,638	10,694	8,403
TOTAL	15,038	14,511	14,084	13,567	13,115	12,638	10,694	8,403
TOTAL 1982-1995	162,557							
Consumption (tcf)								
Residential	4.64	4.46	4.40	4.38	4.33	4.27	4.25	4.21
Commercial	2.66	2.65	2.64	2.62	2.60	2.56	2.47	2.31
Industrial[c]	6.07	6.19	6.39	6.84	7.06	7.27	7.25	6.29
Electric utility	3.36	3.28	3.36	3.63	3.68	3.60	3.17	3.24
Other	2.12	2.10	2.13	2.17	2.18	2.17	2.05	1.80
TOTAL	18.84	18.69	18.92	19.65	19.85	19.87	19.19	17.84
Supply (tcf)								
Conventional	16.89	16.59	16.67	16.67	16.48	16.22	14.87	12.06
Unconventional	0.85	1.00	1.14	1.29	1.44	1.59	1.99	2.44
Imports	0.95	0.95	0.95	1.55	1.72	1.86	2.13	2.37
Other[d]	0.15	0.15	0.15	0.15	0.20	0.20	0.20	0.96
TOTAL	18.84	18.69	18.91	19.66	19.85	19.87	19.19	17.84

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[a] Estimates based upon high oil price case assumptions (see Appendix I).

[b] Nonassociated gas.

[c] Does not include agricultural, mining, and lease and plant consumption.

[d] Includes synthetic natural gas, gas from coal, and potential deliveries through the Alaskan Natural Gas Transportation System (ANGTS).

to in new and renegotiated contracts would establish a gas cap, which would become the new ceiling price for all regulated categories of gas. The gas cap would approximate current market-determined prices and would be lower than NGPA ceiling prices for most new gas categories. We know that NGPA ceiling prices are above market prices because the ceiling prices have created the current surplus of deliverable gas.

After 1985, the Administration's bill would deregulate all gas prices, except those prices set in contracts that neither party chooses to renegotiate. (Generally, pipelines with contracts that have prices above market-clearing price levels would renegotiate the prices in the contract downward, whereas producers with low, price-controlled contracts would renegotiate the prices upward to the market level.) The Administration's bill also would eliminate the potential problem posed by indefinite price escalators. Pipeline companies that have agreed to these contracts can renegotiate and thereby prevent the contracts from causing a rapid escalation in their average gas costs. In addition, the gas cap provision will remain in effect through 1986, and prices in unrenegotiated contracts would not be allowed to exceed the cap.

Ten Trillion Cubic Feet of Old Gas Reserve Additions

Table 4 presents the effects of 10 trillion cubic feet of old gas reserve additions with the Administration's bill in effect. Because these reserves are added gradually to the

Nation's supply (7.1 trillion cubic feet by 1990), the consumption and price effects are not dramatic in the short run. By 1990, however, wellhead and retail prices will be 2 cents to 6 cents lower than they would be in the 5-trillion-cubic-foot case.

Comparison of S.615 and NGPA

Table 5 compares the effects of the Administration's bill (S.615) with those of the NGPA. Under the Administration's bill, wellhead prices and retail prices would fall 33 cents per thousand cubic feet below NGPA levels in the first year after enactment of the bill. As the current surplus deliverability is produced and as low-cost reserves are depleted, wellhead and retail prices will gradually rise to NGPA levels. In the late 1980's and beyond, gas prices are comparable under both S.615 and the NGPA.

Oil imports would be much lower if the Administration's bill is enacted. S.615 would reduce oil imports below what they would be under the NGPA by 250,000 barrels per day in 1983 and by 160,000 barrels per day in 1984. This reduction in oil import demand will place downward pressure on world oil prices to the potential benefit of oil consumers.

V. ANALYSIS OF ALTERNATIVE PROPOSALS

This section assesses the implications of two alternative legislative proposals to the Administration's bill: H.R.2154, introduced by Representative Gephardt, and S.689, introduced by Senator Heinz. Although these bills would provide short-run consumer benefits, they would cause gas shortages and a rapid escalation of prices once decontrol occurs. If either of these bills were enacted, it is likely that wellhead price controls eventually would be extended to avoid sharp price increases. Such an extension of controls would result in market disorders and inefficiencies even more costly than those imposed by the NGPA.

H.R.2154

H.R.2154 would lower most regulated gas prices to January 1, 1982, levels and would restrain future price increases to less than the rate of inflation. The bill would impose a ceiling price (150 percent of the rolled-back Section 103 price) on all "high-cost" gas, including deep gas. Ceiling prices would remain on new gas until January 1, 1987, and on all other gas forever.

Other major provisions of this bill are listed below:

- Take-or-pay obligations would be limited to 50 percent of average daily deliverability for the first 3 years after the bill is enacted.
- Minimum bill requirements would be limited to 50 percent of the contract volume.
- Indefinite price escalator clauses would be prohibited.
- Pipeline companies would be allowed to abrogate any existing or new contract at any time in the future if market conditions no longer justified the contract.

- FERC could deny the passthrough of purchased gas costs upon the determination that a pipeline company's purchasing practices had not "minimized" costs.
- Interstate pipelines would be required to transport gas sold by producers to any purchaser.

Table 6 shows the estimated effects of H.R.2154 on gas prices, demand, and supply. The price rollback provision and take-or-pay limitations on high-cost gas will reduce average gas prices, thereby increasing demand and causing the gas surplus to be marketed more quickly than would occur under the NGPA. Prices fall 12 cents per thousand cubic feet compared to the NGPA in 1982.

The price rollback called for in H.R.2154 is not market determined, and thus some prices are maintained at artificially high levels and others at artificially low levels. In 1984 and 1985, because new gas prices are held below market levels, production of new gas declines and demand increases in response to lower average gas prices. The combination of lower supply, higher demand, and inflexible regulated prices causes a shortage of 640 billion cubic feet in 1984. Shortages would be greater in 1985 if not for the assumption that gas imports increase from 0.95 trillion to 2.4 trillion cubic feet in that year.[8] In 1986, a shortage of 860 billion cubic feet occurs because imports have reached their highest licensed levels and

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[8] Before 1985, gas imports from Canada are assumed to be limited to present levels of about 0.8 trillion cubic feet. After 1985, imports are allowed to reach maximum levels in current licenses of 2.4 trillion to 2.6 trillion cubic feet. (See Appendix I for yearly quantity assumptions.)

Table 3

Projected Prices and Quantities of Natural Gas Under Administration's Bill[a]
(5 tcf Old Gas Supply Response - High Oil Price)

	1982	1983	1984	1985	1986	1987	1990	1995
Gas Prices (1982 $/mcf)								
Average domestic wellhead	2.67	2.52	2.87	3.09	3.50	3.98	4.44	5.39
Gas cap	3.20	2.96	3.41	3.09	3.50	3.98	4.44	5.39
Residential	4.96	4.81	5.14	5.37	5.79	6.25	6.69	7.66
Industrial	3.68	3.50	3.82	4.03	4.44	4.89	5.30	6.24
Reserve Additions (bcf)[b]								
Sections 104 and 106	0	0	0	875	735	615	365	150
Other	15,038	13,925	13,103	12,399	12,031	11,850	10,902	9,434
TOTAL	15,038	13,925	13,103	13,274	12,766	12,465	11,267	9,584
TOTAL 1982-1995	162,018							
Consumption (tcf)								
Residential	4.64	4.54	4.47	4.42	4.35	4.27	4.23	4.21
Commercial	2.66	2.67	2.67	2.65	2.63	2.59	2.49	2.33
Industrial[c]	6.07	6.50	6.54	6.91	7.12	7.23	7.13	6.39
Electric utility	3.36	3.49	3.54	3.64	3.57	3.53	2.96	3.24
Other	2.12	2.19	2.19	2.19	2.17	2.15	2.01	1.81
TOTAL	18.84	19.39	19.40	19.82	19.84	19.76	18.83	17.98
Supply (tcf)								
Conventional	16.89	17.29	17.17	16.85	16.52	16.17	14.79	12.43
Unconventional	0.85	1.00	1.13	1.27	1.40	1.53	1.85	2.21
Imports	0.95	0.95	0.95	1.55	1.72	1.86	1.99	2.37
Other[d]	0.15	0.15	0.15	0.15	0.20	0.20	0.20	0.96
TOTAL	18.84	19.39	19.40	19.82	19.84	19.76	18.83	17.98

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[a] Estimates based on 5 tcf old gas supply response and high oil price case assumptions (see Appendixes I and II).

[b] Nonassociated gas.

[c] Does not include agricultural, mining, and lease and plant consumption.

[d] Includes synthetic natural gas, gas from coal, and potential deliveries through the Alaskan Natural Gas Transportation System (ANGTS).

Table 4

Projected Prices and Quantities of Natural Gas Under Administration's Bill[a]
(10 tcf Old Gas Supply Response - High Oil Price)

	1982	1983	1984	1985	1986	1987	1990	1995
Gas Prices (1982 $/mcf)								
Average domestic wellhead	2.67	2.52	2.87	3.06	3.46	3.89	4.37	5.36
Gas cap	3.20	2.96	3.41	3.06	3.46	3.89	4.37	5.36
Residential	4.96	4.81	5.14	5.35	5.75	6.16	6.62	7.63
Industrial	3.68	3.50	3.82	4.00	4.40	4.81	5.25	6.22
Reserve Additions (bcf)[b]								
Sections 104 and 106	0	0	0	1,750	1,470	1,230	730	300
Other	15,038	13,925	13,103	12,370	11,972	11,741	10,804	9,393
TOTAL	15,038	13,925	13,103	14,120	13,442	12,971	11,534	9,693
TOTAL 1982-1995	170,514							
Consumption (tcf)								
Residential	4.64	4.54	4.47	4.43	4.36	4.29	4.25	4.23
Commercial	2.66	2.67	2.67	2.65	2.63	2.60	2.50	2.35
Industrial[c]	6.07	6.50	6.54	6.95	7.18	7.37	7.30	6.54
Electric utility	3.36	3.49	3.54	3.69	3.67	3.57	3.07	3.28
Other	2.12	2.19	2.19	2.21	2.20	2.18	2.06	1.84
TOTAL	18.84	19.39	19.40	19.93	20.04	20.01	19.18	18.23
Supply (tcf)								
Conventional	16.89	17.29	17.17	16.96	16.71	16.42	15.14	12.70
Unconventional	0.85	1.00	1.13	1.27	1.40	1.53	1.85	2.20
Imports	0.95	0.95	0.95	1.55	1.72	1.86	1.99	2.37
Other[d]	0.15	0.15	0.15	0.15	0.20	0.20	0.20	0.96
TOTAL	18.84	19.39	19.40	19.93	20.04	20.01	19.18	18.23

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[a] Estimates based on 10 trillion cubic feet old gas supply response and high oil price assumptions (see Appendixes I and II).

[b] Nonassociated gas.

[c] Does not include agricultural, mining, and lease and plant consumption.

[d] Includes synthetic natural gas, gas from coal, and potential deliveries through the Alaskan Natural Gas Transportation System (ANGTS).

Table 5

Comparison of NGPA and S.615[a]
(High Oil Price)

	1982	1983	1984	1985	1986	1987	1990	1995
Wellhead Prices ($/mcf)								
NGPA	2.67	2.86	3.02	3.24	3.59	4.00	4.39	5.42
S.615 (5 tcf)		2.52	2.87	3.09	3.50	3.98	4.44	5.39
S.615 (10 tcf)		2.52	2.87	3.06	3.46	3.89	4.37	5.36
Average Retail ($/mcf)								
NGPA	4.13	4.28	4.42	4.65	5.01	5.41	5.77	6.80
S.615 (5 tcf)		3.95	4.28	4.48	4.89	5.33	5.75	6.71
S.615 (10 tcf)		3.95	4.28	4.46	4.84	5.25	5.69	6.68
Residential ($/mcf)								
NGPA	4.96	5.14	5.27	5.43	5.80	6.19	6.60	7.67
S.615 (5 tcf)		4.81	5.14	5.37	5.79	6.25	6.69	7.66
S.615 (10 tcf)		4.81	5.14	5.35	5.75	6.16	6.62	7.63
Conventional Supplies (tcf)								
NGPA	16.89	16.59	16.67	16.67	16.48	16.22	14.87	12.06
S.615 (5 tcf)		17.29	17.17	16.85	16.52	16.17	14.79	12.43
S.615 (10 tcf)		17.29	17.17	16.96	16.71	16.42	15.14	12.70
Total Consumption (tcf)								
NGPA	18.84	18.69	18.91	19.66	19.85	19.87	19.19	17.84
S.615 (5 tcf)		19.39	19.40	19.82	19.84	19.76	18.83	17.98
S.615 (10 tcf)		19.39	19.40	19.93	20.04	20.01	19.18	18.24

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[a] Estimates based on high oil price case assumptions (see Appendix I).

because domestic demand continues to grow at low regulated prices. Partial decontrol in 1987 provides enough price flexibility to prevent shortages after 1986.[9]

Another shortcoming of H.R.2154 is that higher gas demand and rising residual fuel oil prices will increase the disparity between the market-clearing price of gas and the lower regulated prices in the period prior to partial decontrol. This will result in a sudden increase in gas prices if partial decontrol is allowed to occur in 1987 as planned. Average wellhead prices will rise by 47 percent in 1987 and residential prices will go up by more than $1 per thousand cubic feet.

Finally, because H.R.2154 does not deregulate old gas, it continues to discourage recovery of additional old gas reserves and to subsidize high-cost gas production and imports (both of which are higher in 1990 than NGPA levels) at a high cost to natural gas consumers and the economy.

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[9] There is an important relationship between imports and shortages. If imports were allowed to rise above the levels assumed in this analysis, shortages would be reduced or even fully offset, depending upon the magnitude of the increase in imports. Conversely, if imports were limited to less than the amounts assumed here, the shortages would be larger. However, both imports and shortages impose economic costs. The costs of shortages can be very large if the consumers affected cannot easily reduce consumption or switch to alternative fuels. Imports, on the other hand, represent a costly drain of real resources on the economy, especially when domestic gas supplies could be produced at a lower resource cost.

S.689

S.689 would leave the basic pricing provisions of the NGPA in effect but eliminate automatic inflation adjustments and production cost increases. As written, the bill would lower the price of any gas covered by a pre-NGPA contract to the contract price in 1978. There is an exception for contracts with area rate clauses that specifically refer to congressionally established prices.

S.689 would make 50-percent take-or-pay obligations mandatory in existing contracts. Market-out clauses would be included in all gas deregulated under the NGPA. Other provisions concerning pipelines are important, but they do not substantially affect the statistical analysis that follows.

Table 7 shows the estimated effect of S.689 on gas prices, demand, and supply. It was assumed that Section 104 gas prices would be lowered to the average interstate price in 1978. Section 105 gas under indefinite pricing provisions reverts to the average intrastate price in 1978. Section 103 gas produced in pre-NGPA interstate acreage (about 50 percent of interstate Section 103 gas) reverts to a level equivalent to the post-1974 interstate gas price in 1978. This is a conservative assumption, since in 1980 more than half of all post-NGPA wells were governed by pre-NGPA indefinite escalator contracts that do not reference congressional pricing authority.[10]

The price rollback would lower average wellhead prices by 22 cents per thousand cubic feet in the first year. In 1983 and 1984, conventional supply levels are several hundred billion cubic feet above NGPA levels. The current gas surplus is eliminated in the first year as lower prices increase gas demand. In fact, prices are so low that even development drilling (Section 103) declines markedly. Low prices encourage excessive gas demand, and shortages begin to occur by the end of 1983 and reach more than 900 billion cubic feet in 1984.

Take-or-pay limitations are inconsequential once shortages begin to occur. Although a pipeline has the right to cut back on its most expensive gas first in order to lower costs, the massive price rollback on low-cost gas categories creates so much new demand that pipelines need all the gas they can obtain to meet service obligations. In fact, the rollback increases the gas cushion before 1985, and Section 107 gas prices are bid above the levels projected for Section 107 under the NGPA. Unlike H.R.2154, S.689 maintains the NGPA decontrol schedule.

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[10] Data indicating that more than half of post-NGPA wells subject to pre-NGPA contracts with indefinite escalator provisions may be found in Natural Gas Producer/Purchaser Contracts, DOE/EIA-0330, Table 8. Less than 10 percent of pre-NGPA area rate contracts reference congressional authority. See Analysis of Natural Gas Producer/Purchaser Interstate Pipeline Contracts, Decision Analysis Corporation, July 1981, Appendix B.

The price flexibility given to new production after partial decontrol in 1985 is sufficient to prevent shortages from occurring thereafter. However, average wellhead prices will increase 29 percent in 1985 as previously regulated prices must rise to balance supply and demand.

S.689 creates a negative supply effect by rolling back the price of dedicated Section 103 wells to 1978 price levels and by removing inflation escalators. As with the NGPA, S.689 continues to subsidize inefficient production of high-cost gas and consumption of costly imports. Imports are several hundred billion cubic feet greater under the Heinz bill than under the NGPA in the latter part of the decade. The size of the low-cost gas cushion and the inefficiencies associated with it are larger than under the NGPA because the regulated prices are lower under the Heinz bill.

VI. EFFECT OF LOWER WORLD OIL PRICES

NGPA

If world oil prices are lower than the high oil price case and if the NGPA remains in effect, gas prices will continue to rise through 1985 (at 5.8 percent annually), but at a slightly lower rate than under the high oil price case (6.3 percent annually).[11] Prices continue to escalate because gas prices are influenced more by NGPA regulatory ceilings than market by conditions. Table 8 shows forecasted gas consumption and prices under the NGPA with low world oil prices. Because of the NGPA's rising price ceilings and the decrease in oil prices, there is massive switching from gas to oil by industrial and utility users; in 1983 an additional 560,000 barrels per day of oil is consumed above current levels. After partial decontrol under the NGPA in 1985, wellhead prices rise at a slower rate (3.5 percent) than under reference case assumptions (5 percent). The cushion of regulated low-priced gas after 1985, as under the high oil price case, continues to subsidize the production of high-cost gas and gas imports.

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[11] See Appendix I for description of low oil-price case assumptions.

The Administration's Bill (S.615)

The Administration's bill will allow the gas market to adjust to lower oil prices. If the bill is enacted and oil prices are low, the average wellhead price of gas will fall by 30 cents in the first year. Relative to the NGPA, prices will be 47 cents lower in the first year of the Administration's bill. Table 9 provides detailed estimates of the energy and price effects of the bill. Pipelines, seeking to remain competitive with the low oil prices, will bid down the wellhead price of gas. The Administration's bill allows pipelines to purchase a lower cost mix of supplies in order to remain competitive. As a result, wellhead prices under the bill remain lower than prices under NGPA through 1985 (see Table 11). As compared to the NGPA, oil

Table 6

Projected Prices and Quantities of Natural Gas Under H.R.2154[a]
(High Oil Price)

	1982	1983	1984	1985	1986	1987	1990	1995
Gas Prices (1982 $/mcf)								
Average domestic wellhead	2.67	2.55	2.61	2.66	2.71	3.98	4.39	5.42
Residential	4.96	4.83	4.88	5.13	5.22	6.23	6.63	7.69
Industrial	3.68	3.55	3.57	3.80	3.88	5.06	5.41	6.38
Reserve Additions (bcf)[b]								
Sections 104 and 106	0	0	0	0	0	0	0	0
Other	15,038	13,985	13,197	12,703	12,406	12,536	11,029	8,610
TOTAL	15,038	13,985	13,197	12,703	12,406	12,536	11,029	8,610
TOTAL 1982-1995	161,735							
Consumption (tcf)								
Residential	4.64	4.54	4.53	4.51	4.52	4.34	4.25	4.22
Commercial	2.66	2.67	2.68	2.68	2.68	2.65	2.55	2.39
Industrial[c]	6.07	6.49	6.41	7.24	7.34	7.18	7.14	6.20
Electric utility	3.36	3.49	3.43	3.83	3.58	3.56	3.10	3.21
Other	2.12	2.19	2.17	2.20	2.16	2.13	2.02	1.79
TOTAL	18.84	19.37	19.22	20.45	20.28	19.85	19.05	17.81
Supply (tcf)								
Conventional	16.89	17.28	16.98	16.55	16.04	15.77	14.50	12.01
Unconventional	0.85	1.00	1.14	1.29	1.44	1.58	1.98	2.46
Imports	0.95	0.95	0.95	2.45	2.60	2.28	2.37	2.37
Other[d]	0.15	0.15	0.15	0.15	0.20	0.20	0.20	0.96
TOTAL	18.84	19.38	19.22	20.44	20.28	19.84	19.05	17.81
Shortages (tcf)	0.0	0.0	0.64	0.0	0.86	0.0	0.0	0.0

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[a] Estimates based upon high oil price case assumptions (see Appendix I).

[b] Nonassociated gas.

[c] Does not include agricultural, mining, and lease and plant consumption.

[d] Includes synthetic natural gas, gas from coal, and potential deliveries through the Alaskan Natural Gas Transportation System (ANGTS).

Table 7

Projected Prices and Quantities of Natural Gas Under S.689[a]

(High Oil Price)

	1982	1983	1984	1985	1986	1987	1990	1995
Gas Prices (1982 $/mcf)								
Average domestic wellhead	2.67	2.45	2.53	3.27	3.44	3.93	4.38	5.45
Residential	4.96	4.74	4.80	5.48	5.72	6.19	6.64	7.73
Industrial	3.68	3.44	3.49	4.32	4.55	5.03	5.44	6.44
Reserve Additions (bcf)[b]								
Sections 104 and 106	0	0	0	0	0	0	0	0
Other	15,038	13,439	12,929	12,997	12,603	12,170	10,444	8,297
TOTAL	15,038	13,439	12,929	12,997	12,603	12,170	10,444	8,297
TOTAL 1982-1995	157,069							
Consumption (tcf)								
Residential	4.64	4.56	4.56	4.44	4.37	4.29	4.24	4.20
Commercial	2.66	2.68	2.69	2.67	2.65	2.61	2.52	2.36
Industrial[c]	6.07	6.40	6.28	6.73	7.21	7.26	7.06	5.97
Electric utility	3.36	3.46	3.34	3.55	3.84	3.60	3.09	3.15
Other	2.12	2.17	2.14	2.16	2.17	2.13	2.00	1.75
TOTAL	18.84	19.27	19.02	19.55	20.24	19.90	18.91	17.43
Supply (tcf)								
Conventional	16.89	17.17	16.78	16.56	16.21	15.82	14.31	11.53
Unconventional	0.85	1.00	1.14	1.29	1.45	1.60	2.03	2.56
Imports	0.95	0.95	0.95	1.55	2.38	2.28	2.37	2.37
Other[d]	0.15	0.15	0.15	0.15	0.20	0.20	0.20	0.96
TOTAL	18.84	19.27	19.02	19.55	20.24	19.90	18.91	17.43
Shortages (tcf)	0.0	0.19	0.92	0.0	0.0	0.0	0.0	0.0

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[a] Estimates based upon high oil price case assumptions (see Appendix I).

[b] Nonassociated gas.

[c] Does not include agricultural, mining, and lease and plant consumption.

[d] Includes synthetic natural gas, gas from coal, and potential deliveries through the Alaskan Natural Gas Transportation System (ANGTS).

Table 8

Projected Prices and Quantities of Natural Gas Under the NGPA
(Low Oil Price)

	1982	1983	1984	1985	1986	1987	1990	1995
Gas Prices (1982 $/mcf)								
Average domestic wellhead	2.67	2.84	3.01	3.17	3.25	3.45	3.67	4.29
Residential	4.96	5.05	5.23	5.35	5.45	5.64	5.85	6.51
Industrial	3.68	3.74	3.94	4.17	4.26	4.44	4.60	4.99
Reserve Additions (bcf)[b]								
Sections 104 and 106	0	0	0	0	0	0	0	0
Other	15,038	14,306	13,712	13,336	12,624	11,885	9,832	7,536
TOTAL	15,038	14,306	13,712	13,336	12,624	11,885	9,832	7,536
TOTAL 1982-1995	153,460							
Consumption (tcf)								
Residential	4.64	4.47	4.41	4.40	4.41	4.40	4.46	4.53
Commercial	2.66	2.66	2.65	2.64	2.63	2.62	2.60	2.62
Industrial[c]	6.12	5.95	6.47	6.83	7.01	7.08	6.62	4.93
Electric utility	3.36	3.17	3.27	3.47	3.36	3.22	2.73	2.65
Other	2.13	2.05	2.13	2.16	2.14	2.11	1.97	1.66
TOTAL	18.90	18.31	18.92	19.49	19.55	19.43	18.38	16.39
Supply (tcf)								
Conventional	16.94	16.21	16.68	16.51	16.19	15.79	14.25	11.35
Unconventional	0.85	1.00	1.14	1.28	1.43	1.57	1.93	2.27
Imports	0.95	0.95	0.95	1.55	1.72	1.86	1.99	1.80
Other[d]	0.15	0.15	0.15	0.15	0.20	0.20	0.20	0.96
TOTAL	18.90	18.31	18.92	19.49	19.55	19.43	18.38	16.39

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[a] Estimates based on reference case assumptions but assume low oil price case assumptions (see Appendix I).

[b] Nonassociated gas.

[c] Does not include agricultural, mining, and lease and plant consumption.

[d] Includes synthetic natural gas, gas from coal, and potential deliveries through the Alaskan Natural Gas Transportation System (ANGTS).

imports under the Administration's bill drop by 350,000 barrels per day in 1983 and remain lower through 1987.

Beginning in 1985, it is assumed that old gas contracts are renegotiated. Higher prices for old gas allow producers to undertake activities that were not economic under NGPA prices. Under reference case assumptions, the higher prices elicit 4.7 trillion cubic feet of additional supplies of low-cost gas relative to the NGPA through 1995.

Ten Trillion Cubic Feet of Old Gas Reserve Additions

Table 10 presents estimates of the effects of the Administration's bill if oil prices are low and old gas reserve additions total 10 trillion cubic feet. Notably, the low cost of developing old gas reserves means that reserve additions would be unaffected by low prices. The table shows that average wellhead and residential prices would be slightly lower and consumption somewhat greater than for the NGPA and the S.615 base case (5 trillion cubic feet of old gas reserve additions) presented in Table 11.

H.R.2154 and S.689

Tables 12 and 13 show projected prices and quantities for H.R.2154 and S.689 under low oil price assumptions. Table 14 shows the relative residential prices and gas shortages caused by these proposals under the high and low oil assumptions.

Table 9

Projected Prices and Quantities of Natural Gas Under Administration's Bill[a]
(5 tcf Old Gas Supply Reserves--Low Oil Price)

	1982	1983	1984	1985	1986	1987	1990	1995
Gas Prices (1982 $/mcf)								
Average domestic wellhead	2.67	2.37	2.99	3.08	3.15	3.35	3.65	4.29
Gas cap	3.20	2.71	3.59	3.08	3.15	3.35	3.65	4.29
Residential	4.96	4.61	5.22	5.35	5.43	5.62	5.87	6.51
Industrial	3.68	3.30	3.91	3.99	4.06	4.23	4.42	4.94
Reserve Additions (bcf)[b]								
Sections 104 and 106	0	0	0	875	735	615	365	150
Other	15,038	14,003	13,222	12,488	11,752	11,144	9,760	8,305
TOTAL	15,038	14,003	13,222	13,363	12,487	11,759	10,125	8,455
TOTAL 1982-1995	157,003							
Consumption (tcf)								
Residential	4.64	4.59	4.46	4.42	4.42	4.42	4.47	4.54
Commercial	2.66	2.68	2.67	2.66	2.65	2.64	2.63	2.65
Industrial[c]	6.12	6.48	6.70	7.09	7.26	7.33	6.44	4.96
Electric utility	3.36	3.37	3.35	3.37	3.16	2.92	2.75	2.65
Other	2.13	2.18	2.18	2.17	2.14	2.09	1.93	1.66
TOTAL	18.90	19.30	19.37	19.72	19.63	19.41	18.22	16.46
Supply (tcf)								
Conventional	16.94	17.20	17.14	16.75	16.30	15.81	14.20	11.60
Unconventional	0.85	1.00	1.13	1.27	1.40	1.53	1.83	2.10
Imports	0.95	0.95	0.95	1.55	1.72	1.86	1.99	1.80
Other[d]	0.15	0.15	0.15	0.15	0.20	0.20	0.20	0.96
TOTAL	18.90	19.30	19.37	19.72	19.63	19.41	18.22	16.46

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[a] Estimates based on 5 trillion cubic feet of old gas reserve response and low world oil prices. (see Appendixes I and II).

[b] Nonassociated gas.

[c] Does not include agricultural, mining, and lease and plant consumption.

[d] Includes synthetic natural gas, gas from coal, and potential deliveries through the Alaskan Natural Gas Transportation System (ANGTS).

Table 10

Projected Prices and Quantities of Natural Gas Under the Administration Proposal[a]
(10 tcf Old Gas Supply Response--Low Oil Price)

	1982	1983	1984	1985	1986	1987	1990	1995
Gas Prices (1982 $/mcf)								
Average domestic wellhead	2.67	2.37	2.99	3.08	3.14	3.34	3.63	4.27
Gas cap	3.20	2.71	3.59	3.08	3.14	3.34	3.62	4.26
Residential	4.96	4.61	5.22	5.34	5.42	5.61	5.84	6.48
Industrial	3.68	3.30	3.91	3.99	4.06	4.23	4.43	4.93
Reserve Additions (bcf)[b]								
Sections 104 and 106	0	0	0	1,750	1,470	1,230	730	300
Other	15,038	14,003	13,222	12,479	11,737	11,127	9,731	8,265
TOTAL	15,038	14,003	13,222	14,229	13,207	12,357	10,461	8,565
TOTAL (1983-1995)	161,321							
Consumption (tcf)								
Residential	4.64	4.59	4.46	4.42	4.43	4.42	4.48	4.55
Commercial	2.66	2.68	2.67	2.66	2.66	2.65	2.63	2.66
Industrial[c]	6.12	6.48	6.70	7.15	7.34	7.44	6.78	5.16
Electric utility	3.36	3.37	3.35	3.42	3.24	3.06	2.75	2.71
Other	2.13	2.18	2.18	2.19	2.17	2.13	1.98	1.70
TOTAL	18.90	19.31	19.37	19.84	19.83	19.70	18.62	16.78
Supply (tcf)								
Conventional	16.94	17.20	17.14	16.86	16.51	16.09	14.57	11.89
Unconventional	0.85	1.00	1.13	1.27	1.41	1.54	1.86	2.13
Imports	0.95	0.95	0.95	1.55	1.72	1.86	1.99	1.80
Other[d]	.15	.15	.15	.15	.20	.20	.20	.96
TOTAL	18.90	19.30	19.37	19.84	19.84	19.69	18.62	16.78

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[a] Estimates based on 10 tcf old gas reserve response and low oil price case assumptions (see Appendixes I and II).

[b] Nonassociated gas.

[c] Does not include agricultural, mining, and lease and plant consumption.

[d] Includes synthetic natural gas, gas from coal, and potential deliveries through the Alaskan Natural Gas Transportation System (ANGTS).

Table 11

Comparison of NGPA and S.615[a]
(Low Oil Price)

	1982	1983	1984	1985	1986	1987	1990	1995
Wellhead (1982 $/mcf)								
NGPA	2.67	2.84	3.01	3.17	3.25	3.45	3.67	4.29
S.615 (5 tcf)		2.37	2.99	3.08	3.15	3.35	3.65	4.29
S.615 (10 tcf)		2.37	2.99	3.08	3.14	3.34	3.63	4.27
Average Retail (1982 $/mcf)								
NGPA	4.13	4.21	4.39	4.57	4.66	4.84	5.04	5.62
S.615 (5 tcf)		3.76	4.36	4.45	4.52	4.69	4.95	5.59
S.615 (10 tcf)		3.76	4.36	4.44	4.51	4.69	4.93	5.57
Residential (1982 $/mcf)								
NGPA	4.96	5.05	5.23	5.35	5.45	5.64	5.85	6.51
S.615 (5 tcf)		4.61	5.22	5.35	5.43	5.62	5.87	6.51
S.615 (10 tcf)		4.61	5.22	5.34	5.42	5.61	5.84	6.48
Conventional Supplies (tcf)								
NGPA	16.94	16.21	16.68	16.51	16.19	15.79	14.25	11.35
S.615 (5 tcf)		17.20	17.14	16.75	16.30	15.81	14.20	11.60
S.615 (10 tcf)		17.20	17.14	16.86	16.51	16.09	14.57	11.89
Total Consumption								
NGPA	18.90	18.31	18.92	19.49	19.55	19.43	18.38	16.39
S.615 (5 tcf)		19.31	19.37	19.72	19.63	19.41	18.22	16.46
S.615 (10 tcf)		19.30	19.37	19.84	19.84	19.69	18.62	16.78

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[a] Estimates based on low oil price case assumptions (see Appendix I).

Table 12

Projected Prices and Quantities of Natural Gas Under H.R.2154[a] (Low Oil Price)

	1982	1983	1984	1985	1986	1987	1990	1995
Gas Prices (1982 $/mcf)								
Average domestic wellhead	2.67	2.51	2.61	2.66	2.71	3.45	3.68	4.29
Residential	4.96	4.74	4.84	5.07	5.13	5.66	5.87	6.52
Industrial	3.68	3.44	3.53	3.73	3.76	4.46	4.60	5.01
Reserve Additions (bcf)[b]								
Sections 104 and 106	0	0	0	0	0	0	0	0
Other	15,038	13,981	13,143	12,568	12,127	11,873	10,055	7,612
TOTAL	15,038	13,981	13,143	12,568	12,127	11,873	10,055	7,612
TOTAL 1982-1995	152,614							
Consumption (tcf)								
Residential	4.64	4.56	4.54	4.52	4.54	4.45	4.47	4.54
Commercial	2.66	2.68	2.69	2.69	2.70	2.69	2.67	2.70
Industrial[c]	6.12	6.37	6.37	7.34	7.30	6.89	6.31	4.85
Electric utility	3.36	3.29	3.29	3.66	3.42	3.00	2.72	2.62
Other	2.13	2.14	2.14	2.17	2.12	2.07	1.93	1.65
TOTAL	18.90	19.04	19.03	20.38	20.08	19.10	18.11	16.35
Supply (tcf)								
Conventional	16.94	16.94	16.79	16.36	15.85	15.48	14.00	11.29
Unconventional	0.85	1.00	1.14	1.28	1.43	1.57	1.93	2.29
Imports	0.95	0.95	0.95	2.59	2.60	1.86	1.99	1.80
Other[d]	0.15	0.15	0.15	0.15	0.20	0.20	0.20	0.96
TOTAL	18.90	19.04	19.03	20.38	20.08	19.10	18.11	16.35
Shortages (tcf)	0.0	0.0	1.07	0.16	1.10	0.0	0.0	0.0

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[a] Estimates based on low oil price case assumptions (see Appendix I).

[b] Nonassociated gas.

[c] Does not include agricultural, mining, and lease and plant consumption.

[d] Includes synthetic natural gas, gas from coal, and potential deliveries through the Alaskan Natural Gas Transportation System (ANGTS).

Table 13

Projected Prices and Quantities of Natural Gas Under S.689[a]
(Low Oil Price)

	1982	1983	1984	1985	1986	1987	1990	1995
Gas Prices ($/mcf)								
Average domestic wellhead	2.67	2.38	2.45	3.19	3.25	3.45	3.68	4.32
Residential	4.96	4.62	4.70	5.39	5.47	5.66	5.89	6.55
Industrial	3.68	3.31	3.39	4.23	4.29	4.48	4.64	5.08
Reserve Additions (bcf)[b]								
Sections 104 and 106	0	0	0	0	0	0	0	0
Other	15,038	13,345	12,652	12,748	12,269	11,558	9,529	7,304
TOTAL	15,038	13,345	12,652	12,748	12,269	11,558	9,529	7,304
TOTAL 1982-1995	147,982							
Consumption (tcf)								
Residential	4.64	4.59	4.60	4.46	4.43	4.41	4.46	4.53
Commercial	2.66	2.68	2.70	2.69	2.68	2.67	2.65	2.67
Industrial[c]	6.12	6.45	6.27	6.69	6.85	6.89	6.16	4.60
Electric utility	3.36	3.36	3.23	3.41	3.24	3.07	2.72	2.58
Other	2.13	2.17	2.13	2.15	2.12	2.07	1.91	1.61
TOTAL	18.90	19.25	18.93	19.40	19.32	19.11	17.90	15.98
Supply (tcf)								
Conventional	16.94	17.15	16.69	16.40	15.97	15.46	13.72	10.80
Unconventional	0.85	1.00	1.14	1.28	1.44	1.58	1.99	2.41
Imports	0.95	0.95	0.95	1.55	1.72	1.86	1.99	1.80
Other[d]	0.15	0.15	0.15	0.15	0.20	0.20	0.20	0.96
TOTAL	18.90	19.25	18.93	19.38	19.33	19.10	17.90	15.97
Shortages (tcf)	0.0	0.04	1.37	0.0	0.0	0.0	0.0	0.0

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[a] Projections based upon low oil price case assumptions (see Appendix I).

[b] Nonassociated gas.

[c] Does not include agricultural, mining, and lease and plant consumption.

[d] Includes synthetic natural gas, gas from coal, and potential deliveries through the Alaskan Natural Gas Transportation System (ANGTS).

Table 14

Effects of Oil Prices on H.R.2154 and S.689

	1983		1984		1985		1986	
	High	Low	High	Low	High	Low	High	Low
Residential Price ($/mcf)								
H.R.2154	4.83	4.74	4.88	4.84	5.13	5.07	5.22	5.13
S.689	4.74	4.62	4.80	4.70	5.48	5.39	5.72	5.47
Shortages (bcf)								
H.R.2154	--	--	.64	1.07	--	.16	.86	1.10
S.689	.19	.04	.92	1.37				

	1987		1990		1995	
	High	Low	High	Low	High	Low
Residential Price ($/mcf)						
H.R.2154	6.23	5.66	6.63	5.87	7.69	6.52
S.689	6.19	5.66	6.64	5.89	7.73	6.55

Both bills regulate gas prices at specified amounts. Therefore, lower world oil prices do not significantly lower average wellhead prices if either of the two bills is enacted. The effect is the same as that of the NGPA when oil prices fall below the level at which gas is competitive with oil. Only the prices of new contracts, which have to be priced at market levels to be sold, are affected by low oil prices.

Table 14 shows that lower world oil prices reduce the price increases upon partial decontrol under the two bills. The price increases are lower at the time of decontrol because competing fuel oil prices are lower. However, curtailments increase under the lower oil price scenarios. Two factors account for this phenomenon. First, the demand for gas is higher at oil-equivalent prices because lower oil prices reduce the incentives for industry and electric utilities to reduce oil and gas use by conserving or by converting to coal or other fuels. Second, the supply of gas is lower because the value of gas has declined with the reduction in the price of competing fuels. Therefore, even if future oil prices are low, mandated price rollbacks and price freezes in conjunction with partial decontrol and continued controls on old gas make it very unlikely that the natural gas market will be stable in the years ahead if either of these bills is enacted.

APPENDIX I

MAJOR ASSUMPTIONS AND TECHNICAL REFINEMENTS USED IN MODELING ALTERNATIVE NATURAL GAS POLICIES

MAJOR ASSUMPTIONS

The following section of this appendix describes the major numerical assumptions used in the Two-Market Evaluation System. All of the assumptions described in this section are identical to those used to prepare the analytic findings in the February 28 report.

- Economic growth rates

1983	1984	1985	1982-90
1.7	3.7	4.2	3.4

- Oil price assumptions (1982 dollars per barrel)

High Oil Price Case

Year	Average Refinery Acquisition Cost of Crude Oil	Gulf Coast High Sulfur Residual Fuel (2% S)	Gulf Coast Low Sulfur Residual Fuel (1% S)
1982	33.66	24.66	28.48
1983	31.60	23.43	25.98
1984	30.97	24.01	25.87
1985	31.17	25.46	26.97
1986	31.48	27.20	28.71
1987	31.80	29.87	31.38
1988	32.12	30.91	32.42
1989	32.44	31.26	33.06
1990	32.75	31.55	33.99

I-2

Low Oil Price Case

Year	Average Delivery Acquisition Cost of Crude Oil	Gulf Coast High Sulfur Residual Fuel (2% S)	Gulf Coast Low Sulfur Residual Fuel (1% S)
1982	33.66	24.65	28.48
1983	23.58	20.53	23.49
1984	23.58	22.56	25.23
1985	23.82	22.79	25.46
1986	24.06	23.03	25.75
1987	24.30	24.13	26.85
1988	24.54	25.17	27.84
1989	24.79	24.94	27.78
1990	25.04	24.65	27.72

- Transmission and distribution margins are assumed to remain constant.
- There is 1.5 trillion cubic feet of excess gas deliverability in the natural gas market.
- Producers price their gas at the highest allowable regulated rate. In other words, regulated price ceilings act as price floors.
- Reserve base reflects U.S. Geological Survey median estimates of recoverable reserves.
- Wellhead prices include severance taxes of 7 percent and production related cost "add-ons" of 3 cents per thousand cubic feet in 1982 and 10 cents per thousand cubic feet after 1982.

o Gas Import Assumptions[1]
(Maximum Quantities)

Year	Canada Step 1	Canada Step 2	Mexico Step 1	Mexico Step 2	LNG	Total
1982	800	0	110	0	42	952
1983	800	0	110	0	42	952
1984	800	0	110	0	42	952
1985	1,840	600	110	0	42	2,440
1986	1,680	770	110	0	42	2,602
1987	1,120	1,010	110	0	42	2,282
1988	900	1,320	110	0	42	2,372
1989	770	1,450	0	110	42	2,372
1990	570	1,650	0	110	42	2,372
1991	570	1,650	0	110	42	2,372
1992	570	1,650	0	110	42	2,372
1993	570	1,650	0	110	42	2,372
1994	570	1,650	0	110	42	2,372
1995	570	1,650	0	110	42	2,372

TECHNICAL REFINEMENTS

The statistical findings in this paper differ slightly from comparable estimates in the February 28 report because of five minor refinements in the way gas price and quantity estimates are calculated.

The first refinement corrects a modeling error in the February 28 report that caused little or no Section 104 gas to be shut-in. The algorithm was therefore modified to assume that 10 percent of available Section 104 gas was shut-in during 1982 and 1983 and that 5 percent was shut-in during 1984. This change also causes NGPA average wellhead prices to increase above the price levels in the previous report by 4 to 8 cents per thousand cubic feet from 1982 to 1984. Second, a more accurate estimate has been made of the effect of reducing take-or-pay obligations on Section 107 prices to 70 percent, which is shown to cause the average wellhead price of Section 107 gas to fall by more than $1 per thousand cubic feet in 1983. Third, the gas cap is applied to Section 105 gas, which was not done in the February 28 report. This causes wellhead prices to fall more under the Administration's bill. Fourth, residential margins were increased by 10 cents for both the NGPA and the Administration's bill to conform with recent updated empirical data. Finally, the amount of gas imported in 1988 is constrained to authorized levels and is not allowed to reach higher levels, as was the case in the earlier report.

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[1] Price rules:
Step 1: $5.04 in 1982 ± percent change in world oil price
1982-84: Maximum equal to current level
1985-88: Maximum equal to existing licenses
Step 2: Priced to compete with domestic supplies
1985-95: Current quantities authorized under new licenses

ASSUMPTIONS SPECIFIC TO THE ADMINISTRATION'S BILL

- The bill is enacted in 1983 and the gas cap becomes effective in 1983.
- Old gas contracts are not renegotiated until 1985, at which time all contracts are renegotiated.
- Prudent increases in wellhead gas prices are passed through to consumers. PGA limitation is not binding for any pipeline.

ASSUMPTIONS SPECIFIC TO H.R.2154

- The provision calling for stricter imprudence standard has little effect.

- The bill is passed and implemented in 1983.
- The prohibition on indefinite price escalators does not roll back prices beyond January 1982 levels; it simply prevents a contract-created price spike in 1985.
- The redefined NGPA ceilings continue to act as floors. Producers would succeed in insisting upon these price ceilings because shortages are occurring.

ASSUMPTIONS SPECIFIC TO S.689

- Bill is implemented in 1983.
- Section 104 prices rolled back to 1978 interstate price levels.
- Section 105 gas prices covered by indefinite price escalators rolled back to 1978 prices for such contracts ($1.60 per million cubic feet).
- All Section 103 gas from interstate-dedicated acreage (50 percent of interstate Section 103 gas) is rolled back to the post-1974, Section 104 price level.

APPENDIX II

SUPPLY RESPONSE FROM REMOVING PRICE CONTROLS ON OLD GAS

This appendix summarizes our findings concerning the reserve additions attributable to the wellhead price deregulation provisions in the Administration's bill. The reserve additions described here are additions to the ultimate amount of gas recovered from forever-regulated categories of gas, not the increase in the rate of producing old gas that would occur under S.615. These reserve additions are made up of three components: reserves added as a result of extending the economic life of old gas wells; reserves added by production enhancement techniques; and reserves added from infill wells that would not be drilled under the NGPA.

This appendix begins with a complete description of those categories of gas that are forever regulated under the NGPA. We then provide estimates of the volumes and prices associated with those categories of gas and examine why a number of NGPA mechanisms specifically designed to maximize old gas supply have failed. In this analysis, we are able to provide quantitative estimates of the old gas reserve additions attributable to longer well life under S.615 (4.9 trillion to 6.1 trillion cubic feet) and attributable to production enhancement (1.5 trillion to 3.0 trillion cubic feet). However, at this point we are able to provide only a qualitative description of the maximum amount of reserves attributable to additional development or infill drilling.

Table II-1 is a description of the different NGPA categories of forever-regulated gas and the April 1983 ceiling prices. These ceiling prices range from 28 cents per thousand cubic feet for minimum rate Section 104 gas to over $5.50 per thousand cubic feet for gas from tight sand formations. The ceiling prices for all these categories of gas escalate monthly at the rate of inflation.

Table II-2 presents estimates of some of the volumes of forever-regulated reserves of gas that would be affected by the price deregulation provisions of S.615. The reserves shown in the table would increase from greater use of production enhancement techniques and extensions in the economic life of old gas wells. These volumes do not include reserves that would be added by additional infill drilling.

Under existing law, there are several mechanisms whereby gas in the forever-regulated categories can receive a higher price, and these mechanisms are described in Table II-3, along with a description of why they fail to provide as large a supply response as S.615. In fact, only one of these mechanisms--the stripper well incentive price--can be expected to provide significant reserve additions by extending the life of old gas wells. Unfortunately, only a fraction of the potential old gas reserves can be captured in this way. Under the NGPA, most potential old gas reserves that could be produced under an extended well life are lost, because the wells become uneconomic before they reach stripper status.

Table II-1

NGPA Categories and Maximum Lawful Prices for Forever-Regulated Gas Production (April 1983 dollars per million Btu)

NGPA Section	Description	Price Ceiling
Fraction of 102	Gas from an OCS reservoir not discovered before 7/27/76 on a lease issued before 4/20/77	3.367
Fraction of 103	Gas from new, onshore production wells (spudded after 2/18/77) that are on acreage dedicated to interstate commerce before 4/20/77	2.752
All of 104	Gas committed to interstate commerce on 11/8/78 for which a just and reasonable rate was in effect:	
	1. Wells spudded after 1974	2.278
	2. Wells spudded in 1973 and 1974 (small producer)	1.929
	3. Wells spudded in 1973 and 1974 (large producer)	1.474
	4. Contracts replaced or wells recompleted after 1972 (small producer)	1.084
	5. Contracts replaced or wells recompleted after 1972 (large producer)	0.828
	6. Wells spudded before 1/1/73 (small producer)	0.545

(Table II-1 continued)

NGPA Section	Description	Price Ceiling
(All of 104)	7. Wells spudded before 1/1/73 (large producer)	0.463
	8. Permian Basin gas under contract dated after 9/30/68 (small producer)	0.646
	9. Permian Basin gas under contract dated after 9/30/68 (large producer)	0.568
	10. Rocky Mountain gas under contract dated after 9/30/68 (small producer)	0.646
	11. Rocky Mountain gas under contract dated after 9/30/68 (large producer)	0.545
	12. Appalachian Basin (north) gas under contracts dated after 10/7/69	0.514
	13. Other Appalachian Basin contracts	0.481
	14. Minimum rate gas	0.283[a]
Fraction of 105	Gas under intrastate contracts with indefinite price escalations or fixed-rate contracts priced below $1 per thousand cubic feet in 1985.	3.367[b]
All of 106(a)	Gas under rollovers (after 11/9/78) of interstate contracts	0.846[c]
All of 107(c)5	Incentive high-cost gas	
	1. From tight formations	5.504
	2. From enhanced recovery wells	2.278
All of 108	Gas from stripper wells	3.607
All of 109	Gas from all other wells	2.278

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[a] Price per thousand cubic feet

[b] Or contract price, if lower

[c] Or prior maximum price, adjusted for inflation, if higher

Table II-2

Volumes of Forever-Regulated Gas Reserves that Would Exhibit a Significant Supply Response Under S.615[a]

Category	Price Treatment	Reserves[b] (trillion cubic feet)		
		1983	1985	1990
Old Interstate (Fraction of 103)	Forever-Regulated at prices lower than the market price	9.9	7.7	3.8
Old Interstate (All of 104 and of 106(a))	Forever-Regulated at low prices	42.4	33.2	16.0
Old Intrastate (Fraction of 105 and 106(b) controlled at low prices)	About 13 percent is priced forever below $1 per thousand cubic feet due to fixed-rate contracts. About 55 percent will be controlled at near-market prices.	4.0	3.3	1.8
Subtotals		56.3	44.2	21.6
All other proved, producing, remaining gas reserves[c]		77.5	88.4	96.8
TOTAL		133.8	132.6	118.4

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[a] Estimates of dry gas reserves under the NGPA taken from the two-market supply model, high oil price case. Sections 102(d), 107(c)5, 108, and 109 production also remain forever regulated, but the supply responses from these categories are expected to be small, either because the price ceiling is not significantly below the market price or because the volumes affected are small.

[b] Beginning of year balances. These volumes do not include reserves that would be added by infill wells drilled under S.615.

[c] A small percentage of these reserves are subject to low, fixed-rate contracts under the NGPA and would benefit from higher prices under S.615. In 1980, 20 percent of post-NGPA production was subject to such contracts. (Natural Gas Producer Purchaser Contracts, (DOE/EIA-0330), June 1982, Table 10.)

Table II-3

NGPA Mechanisms That Raise the Price of Forever-Regulated Gas

Mechanism	Description	Effectiveness
Reentries	Old wells (pre-NGPA) that have been abandoned can currently apply for a Section 109 price if they are reopened.	Once an old well has been abandoned and plugged, a reentry can be just as expensive as a new well. To date, there have been virtually no Section 109 prices received for reentries, despite thousands of abandoned wells.
Recompletion in Tight Sands	Old wells that penetrate a tight formation reservoir can apply for a Section 107(c)5 price. FERC currently has approximately 12,000 total tight formation filings. It is unknown how many of these are from old wells.	Limited applicability.
Production Enhancement	Section 105 gas may apply for a Section 109 incentive price ($2.25 per million Btu in January 1983) if a qualifying capital expenditure to enhance recovery is made.	Only intrastate wells are eligible. Pipeline often must agree to a price increase. (Only 500 wells have qualified as of April, 1983.) Section 109 prices ($2.25 per million Btu in January) will be $1 to $2 below a market-clearing price during 1985-90.

ADDITIONAL GAS RESERVES THROUGH PROLONGED WELL LIFE

For any given price of gas from a particular well, there exists a production rate where the revenue generated will no longer cover the operating costs of that well. This is the point at which the producer will typically abandon the well. If the price of the gas were higher, the well could continue to produce in commercial quantities until it reached a new, lower break-even production rate.

Under existing law, a well that drops below a production rate of 60 million cubic feet per day can qualify for a Section 108 incentive price. Because operating costs are high and because old wells are subject to a number of problems that are expensive to solve, most old gas reserves are abandoned before the wells reach stripper status.

Our estimates of the volume and average price of the forever-regulated reserves that would be affected by deregulation are shown in Table II-4 on the following page.

Table II-4

Forever-Regulated Reserves

	1985 Non-Associated Reserve Level	1982 Price (1982 $/mm Btu)
Old Interstate[a] (Sections 104, 106A)	33.2 tcf	1.29
Old Intrastate Regulated[b] Forever at low prices	3.3 tcf	.28
	36.5 tcf	1.20

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[a] Reserve level taken from beginning of year reserve balance, DOE supply model, high oil case. Price taken from PGA data reported in Analysis of Post-NGPA Interstate Pipeline Wellhead Purchases (EIA/DOE-0357), Table 1. The average price of this gas is rising a few cents a year above the rate of inflation.

[b] Beginning of year reserves for all old intrastate gas was 31.1 trillion cubic feet. Using Table 11 of Intrastate and Interstate Supply Markets Under the NGPA (DOE/EIA-0309), we found that 13 percent of old intrastate gas was governed by definite price escalation that would never be decontrolled. The average price of this gas was 28 cents per million Btu in 1979.

The best geological, engineering analysis of this old gas supply response is the work done by C. S. Matthews at Shell Oil.[1] Shell presents geologic data on the 14 largest gas producing fields in the United States and estimates abandonment pressures and current pressures, using conservative engineering judgment. Using these current field pressures, we recalculated abandonment pressures under an assumed average price under the NGPA of $1.25 per million Btu. We then calculated the lower abandonment pressure with our estimated 1985 deregulated price of $3.03 per million Btu.

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[1] Increase in U.S. Old Gas Reserves Due to Deregulation, C. S. Matthews, Shell Oil, April, 1983.

This difference in abandonment pressures implies a fractional increase in reserves for each field. Using the field reserve information given by Shell, we calculated a cumulative 6.9 trillion cubic feet reserve increase as a result of S.615. Our estimate of the proved reserve base benefitting from decontrol in 1985 is 36.5 trillion cubic feet, whereas the proved reserve base in Shell's study was 41.3 trillion cubic feet. Assuming that the 14 fields are representative, we project 6.1 trillion cubic feet of national reserve additions from decontrol after 1985. By examining the abandonment pressures in the sample under regulated prices, it is possible that 20 percent of this estimated reserve increase would occur anyway under the NGPA as wells qualified for stripper status. Therefore, our estimate of reserve additions occurring through lower abandonment pressures under S.615 is 4.9 trillion to 6.1 trillion cubic feet..

RESERVE ADDITIONS FROM PRODUCTION ENHANCEMENT

Production enhancement techniques increase both the rate of gas production from a well and the ultimate amount of gas recovered from that well. Examples of production enhancement techniques include hydraulic fracturing, acidizing, tubing replacement, compression, and operations to shut off water intrusion. FERC recently allowed the Section 109 price of $2.28 per million Btu for these techniques when applied to old intrastate wells. (Interstate wells are not eligible.) Deregulated prices would result in even more application of these techniques. FERC allows production-related compression costs to be added to maximum lawful prices. However, the compression techniques necessary to actually improve a well's productivity are production costs and are not allowed to be passed through.

A 1982 survey of Sun-operated interstate wells drilled before 1975 indicates a 54-billion-cubic-foot additional reserve response from a $2.18-per-million-Btu allowance for these techniques, a figure that was scaled up to a national level of 2.7 trillion cubic feet, based on Sun's 2-percent production market share. (ARCO made a similar estimate of 2.3 trillion cubic feet.) However since intrastate wells are already eligible, these national estimates should probably be reduced by 40 percent. On the other hand, deregulated prices are substantially above Section 109 prices. We therefore believe that anywhere from 1.5 trillion to 3 trillion cubic feet of additional reserves are available from these relatively inexpensive well stimulation techniques. Indeed, these reserves would be added almost immediately with the decontrol of old gas.

RESERVE ADDITIONS FROM INFILL DRILLING

Everyone agrees there are substantial reserves to be added through infill drilling. But the NGPA already provides incentives for onshore infill drilling of old reserves through Section 103 provisions. Section 103 wells will be deregulated under the NGPA, except for those wells on acreage dedicated to interstate commerce prior to 1978 and on acreage covered by definite rate contracts. We have been unable to quantify the magnitude of the supply response that would be realized if gas from this acreage were deregulated.

It also is extremely difficult to determine how much prospective acreage is currently covered by old, fixed-rate contracts that do not allow producers to benefit from Section 103 provisions. An EIA survey of 1980 contracts showed that 20 percent of post-NGPA wells were covered only by definite price escalators. Even if this percentage decreases over time as contracts are voluntarily renegotiated, this constraint could prevent substantial gas reserves from ever being produced. (Shell estimates a 21-trillion-cubic-foot unrealized reserve potential from infill drilling.) If only a small percentage of these reserves are covered by low prices, several trillion cubic feet of gas reserves will be lost under the NGPA.

The Section 103 incentive price does not apply to development wells in old reservoirs on old OCS leases. Development wells on these old OCS leases are covered by Section 104 rather than

Section 103 prices. Sun estimates that pre-NGPA, Gulf-of-Mexico tracts have an unrealized new gas potential in the range of 6 percent to 10 percent. This is consistent with ARCO's estimate of a 9-percent increase in ultimate reserves made possible through increased development drilling on old offshore leases. Applying these percentage estimates to DOE'S estimates of old, offshore reserves indicates that there may be up to 2 trillion cubic feet of gas reserves that have yet to be drilled and produced.

In summary, the deregulation of all infill or development drilling can add at least 2 trillion cubic feet of old gas--and potentially much more--to the Nation's supply. These are reserves that will not be produced under the provision of the NGPA that keep some portion of Section 103 gas forever regulated.

OTHER STUDIES OF THE OLD GAS SUPPLY RESPONSE

Four other organizations have studied the old gas supply question. Table II-5 compares our estimates with those made by Shell, ARCO, Sun, and the Natural Gas Supply Association.

Table II-5

Estimates of Old Gas Reserve Additions Due to Deregulation

	DOE	SHELL	ARCO	SUN	NGSA
Extended Well Life	4.9-6.1	27.0	27.6	--	--
Production Enhancement	1.5-3.0	7.0	2.6	2.8	--
Infill Drilling	2.0-2+	18.0	7.8	--	--
TOTAL	8.4-11.1+	52.0	38.0	--	7.5[a]

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[a] NGSA arrived at this total estimate by combining only extended well life and production enhancement; it chose not to provide an estimate of the effect of S.615 on infill drilling.

As shown in Table II-5, we estimate that additions to old gas reserves will increase by 8.4 trillion to 11.1 trillion cubic feet if the NGPA is replaced by S.615. This estimate may prove to be too low if further work indicates that reserve additions from additional infill drilling would be greater than 2.0 trillion cubic feet.

OIL DEREGULATION EXPERIENCE

Energy regulations have had a history of creating disincentives to produce both oil and gas in this country. The resulting low levels of oil and gas production have imposed enormous costs on our economy in terms of shortages and an overreliance on expensive imports. Recent history has proved that wellhead oil price deregulation provided the maximum amount of domestic oil at the lowest possible cost, and we believe this experience provides an important lesson for future gas pricing policy.

Since oil deregulation began in 1979, domestic production of petroleum liquids has risen. This contradicts Government estimates of oil production that were made when the deregulation of oil was under consideration. Those estimates projected domestic oil production to decline significantly, despite a forecast of rising world oil prices. Yet, while world oil prices since deregulation have been lower than projected, domestic oil production is already 0.5 million to 2.0 million barrels per day above the levels projected during those deliberations on oil deregulation.

The deregulation of oil clearly has raised incentives to search more intensively for new oil fields. Moreover, deregulation has encouraged increased investment in processes to increase reserve recovery from old oil fields. From 1977 through 1979, reserve additions from extensions to old reservoirs steadily declined. In 1980, the first year after deregulation began, extensions to old reservoirs sharply increased by about 150 million barrels, reaching a total of 570 million barrels. In 1981, following immediate deregulation, extensions to old reservoirs again increased--this time by 180 million barrels, for a total of 750 million barrels. In comparison, new field discoveries in 1980 increased by 35 million barrels, for a total of 140 million barrels, while new field discoveries in 1981 increased by 110 million barrels, for a total of 250 million barrels. Thus, in the first 2 years following oil price deregulation, extensions of old reservoirs contributed more to the growth of domestic oil reserves than discoveries of new fields.

THE COMMITTEE ON ENERGY AND NATURAL RESOURCES DID NOT RECEIVE RESPONSES TO WRITTEN QUESTIONS FROM THE FOLLOWING WITNESSES:

Thursday, March 10, 1983

Panel 3

Mr. Wayne Harmon, Executive Vice President
Louisiana Association of Independent Producers
and Royalty Owners

Mr. David I. Greenberg, Legislative Director
Consumer Federation of America

Saturday, March 12, 1983

Panel 1

Mr. Brian Lederer
National Association of State Utility Consumer Advocates

Mr. Frank Simoneaux
Louisiana Department of Natural Resources

Mr. Philip R. O'Conner, Chairman
Illinois Commerce Commission

Panel 2

Mr. John Abram, Chairman
Southern California Gas Company

Panel 3

Mr. C. Robert Palmer
International Association of Drilling Contractors

Mr. Dwight Moorhead, Vice Chairman
Petro-Lewis Corporation

Mr. Russell Thompson
Operational Economics, Inc.

Panel 4

Mr. James S. Rubin
Allied Corporation on behalf of National Association
of Manufacturers

Mr. George Rosenthal, Chairman
National Affairs Committee
Independent Bakers Association

APPENDIX II

Additional Material Submitted for the Record

American Farm Bureau Federation

AMERICAN FARM BUREAU FEDERATION

WASHINGTON OFFICE
600 MARYLAND AVE., S.W.
SUITE 800
WASHINGTON, D.C. 20024
AREA CODE 202 - 484-2222

March 23, 1983

SENATE COMMITTEE ON
ENERGY AND NATURAL RESOURCES
RECEIVED
MAR 2[illegible] 1983

Honorable James A. McClure,
Chairman, Senate Committee on
Energy and Natural Resources
3106 Dirksen Senate Office Building
Washington, DC 20510

RE: Natural Gas Legislation

Dear Senator McClure:

Farm Bureau is the nation's largest general farm organization, with over three million voluntary member families in 48 states and Puerto Rico. We estimate that about 85 percent of the working farmers and ranchers in the United States are Farm Bureau members.

Farm Bureau policy is developed from the grass roots up through the ranks of the organization. Because of the nature and scope of our policy process, we are confident that our adopted policies represent the thinking of a majority of individual farmers and ranchers in this country.

1983 Farm Bureau policy on energy, adopted in January at the 64th annual meeting, calls for deregulation of natural gas. This position is based upon the concerns of farmers and ranchers for adequate and timely supplies of energy necessary to produce, process and transport food and fiber for our nation. We believe that the market is the better allocator and price setter for all energy supplies, including natural gas.

The federal government has regulated natural gas since at least 1954. Federal controls kept natural gas prices artificially low. As a result, natural gas was overused in relation to alternative energy sources. Also, exploration and development of new natural gas supplies dwindled due to the lack of economic incentives. By the winter of 1976-1977, there was a severe shortage of natural gas, except in the unregulated intrastate markets of the producing states. Factories had to be shut down, schools closed, and many people were unable to heat their homes.

In response to this energy crisis, Congress debated decontrol, but finally chose to enact the Natural Gas Policy Act (NGPA). The NGPA gave rise to new problems and compounded the old ones. Regulations multiplied. Over twenty price categories were set favoring the most expensive gas. The intrastate gas market was brought under federal control. New gas would eventually escape control, but old gas was to be forever regulated.

Today, in spite of an apparent abundance of gas supplies, prices are rising sharply. Consumers are angry and demanding relief. So Congress is again considering whether to deregulate or reregulate.

We submit that federal controls have not only failed, but have been the principal cause of supply and price problems for the consumer. Now is the time to completely decontrol all natural gas supplies. We believe that all consumers and every segment of our economy will benefit from decontrol.

Deregulation would have an impact on production agriculture primarily in the supply and prices of ammonia (nitrogen) fertilizer made from natural gas. The major uses of ammonia fertilizer are concentrated on corn, cotton, wheat, fruits, and vegetables. Ammonia fertilizer accounts for about 36 percent of fertilizer expenditures and about 2.4 percent of overall production costs. Approximately 40 percent of the cost of ammonia production is the cost of the natural gas input.

On a straight arithmetical basis, each 10 percent increase in natural gas prices would result in a 4.0 percent increase in the price of farm ammonia or a .1 percent increase in overall farm production costs. This means that even if natural gas prices doubled there would be only a 1 percent increase in farm costs. This assumes that gas price increases would flow straight through the production chain and that all else would remain the same. But all else would not remain the same. Ammonia producers would improve efficiencies. Farmers would accelerate the adjustments they are now making, such as using less ammonia, adopting more efficient methods of application, or switching to other nitrogen fertilizers.

We do not, however, foresee drastic price increases for natural gas under decontrol. We do foresee increased natural gas production and added competition among various energy sources, particularly petroleum based liquid fuels. This is very significant for production agriculture which spent $8.8 billion for gasoline, diesel fuel, and lubricants in 1982, more than one and one-half times the direct and indirect expenditures for natural gas. An abundance of natural gas not only places price pressures on liquid fuels, but also releases liquid fuel supplies for uses where there is no readily available alternative energy source, such as production agriculture.

Irrigation pumping and crop drying are the other major uses of natural gas in production agriculture that would be affected by deregulation. The use of natural gas for irrigation pumping takes place primarily in the states of Texas, Kansas, New Mexico and Arizona. Propane, derived from natural gas, has its highest usage in the states of Nebraska, Texas, Arkansas, New Mexico and Oklahoma. However, nationally 70 percent of irrigation pumping units rely on electricity, while only 19 percent use natural gas.

The use of natural gas for crop drying is highest in the corn belt. Usage varies considerably depending upon the weather which affects moisture content. Also, there already has been considerable interest by corn belt farmers in converting to low temperature natural air dryers and various solar applications for drying.

Overall, we believe the impact of natural gas deregulation would be minimal even under the worst-case projections for gas prices. Most farmers and ranchers can make compensating adjustments, and will do so better than they did when gasoline and diesel fuel prices skyrocketed under the OPEC embargoes. Assuming for the moment that the worst-case gas prices would occur, the increased supply advantages would still outweigh the price disadvantages. Furthermore, the present time is the best time to decontrol natural gas as far as agriculture is concerned. Tremendous commodity surpluses are dictating reductions in agricultural production, which means there will be reduced demands for natural gas based fertilizers. If decontrol were to occur now, natural gas price adjustments to market clearing levels would take place when agriculture's demands are lowest.

However, we do not believe worst-case price increases will result. If deregulation were to occur immediately, we believe overall gas prices would decline, particularly now that oil prices are dropping drastically. The present situation with petroleum is a good example of the benefits to be derived from deregulation of natural gas.

Numerous bills have been introduced in Congress which propose either reregulation or deregulation. We are opposed to those which call for reregulation through price rollbacks and freezes for all natural gas, both old and new. These measures would only compound today's problems and make the ultimate adjustment to marketplace determinations that much more difficult and injurious to consumers.

The Administration has proposed phased deregulation of all natural gas by January 1, 1986. Introduced in the Senate as S. 615 and as H.R. 1760 in the House, the Administration's proposal would encourage voluntary contract renegotiation during the transition period to correct current distortions in the regulated market. Consumers would be protected from further NGPA price distortions through price caps and Federal Energy Regulatory Commission reviews on cost pass-throughs above the rate of inflation. Take-or-pay obligations will be restricted to 70 percent, and parties to all pre-enactment contracts will have the right to market-out on January 1, 1985. The Administration's proposal also would repeal the Fuels Use Act of 1978 which restricts natural gas uses.

While we would prefer immediate, total decontrol, Farm Bureau can support passage of the Administration's proposal as contained in

Table II-3 (continued)

NGPA Mechanisms That Raise the Price of Forever-Regulated Gas

Mechanism	Description	Effectiveness
Stripper Status	When a well drops below a production rate of 60,000 cubic feet per day, it can qualify for a Section 108 incentive price. To qualify for this price, the filing must show that the well has produced at its maximum rate for the previous 12 months. If, after qualifying as a stripper well, the application of some enhanced recovery technique results in a production rate above 60,000 cubic feet per day, the producer then must make a second filing to show the higher rate is a result of compression, acidization, or other enhancement techniques that were applied after receiving the incentive price. Otherwise, the price ceiling will revert to its pre-Section 108 category level.	The average Section 104/106 well produces 130 to 140 million cubic feet annually. Stripper production eligibility begins at 22 million cubic feet of annual production. Annual operating costs for older and more expensive wells can easily exceed revenues long before stripper production levels are reached. Wells therefore are abandoned under the NGPA that would have a longer and more productive life under a deregulated environment. Water loading, corrosion, and sand can all shorten well life and prevent a well from reaching stripper status.

NOTE: It is sometimes claimed that infill drilling to produce reserves that otherwise would have been produced from an old gas wellbore is one way of raising the price of old gas (gas from an infill well is Section 103 gas). In practice, this mechanism has very limited applicability. Well spacing must be approved by State conservation agencies, which were required to (and did in fact) promulgate strict well-spacing regulations after enactment of the NGPA. To date, there is no evidence of this mechanism being successfully used to increase the ultimate production of old gas.

S. 615 and H.R. 1760. We recognize that there are refinements and improvements that can and will be made to the Administration's proposal.

However, we believe it is critical that there be no extension beyond the January 1, 1986, date for total decontrol, and that all gas--both old and new--be deregulated.

We reiterate that federal controls on natural gas have not only failed, but have been the principal cause of our supply and price problems. The last thing we need now is more of the same.

We will appreciate your consideration of our views in this matter of utmost importance. We request that our views be included in the Committee's hearing record on natural gas legislation.

Respectfully,

John Datt

John C. Datt
Secretary and Director
Washington Office

lh
cc: Committee Members

DAVID P. STANG, P. C.
ATTORNEY AND COUNSELLOR AT LAW
1629 K STREET, N.W.
SUITE 601
WASHINGTON, D.C. 20006

DAVID P. STANG
J. MICHAEL KEELING

(202) 223-5730

March 30, 1983

SENATE COMMITTEE ON
ENERGY AND NATURAL RESOURCES
RECEIVED
APR 5 1983
WASHINGTON, D.C. 20510

The Honorable James A. McClure
368 DSOB
Washington, D. C. 20510

Dear Senator McClure:

We request the attached statement be put into the record on the Committee hearings on S.615 and other legislation related to the pricing of natural gas.

If you have any questions, please contact me at the address above.

Sincerely yours,

J. Michael Keeling

cc: Members of the Senate Energy Committee

NATIONAL ASSOCIATION OF ROYALTY OWNERS
STATEMENT ON
NATURAL GAS REGULATION POLICY

The National Association of Royalty Owners, Inc., which represents nationally the interests of 1.3 million royalty owners of natural gas, and 2.5 million royalty owners of oil, voted on February 8 in a special meeting in Washington, D.C., to support fully all attempts to restore the elements of a free and unhampered market to the natural gas industry.

In a position paper created in July of 1982 and endorsed in October in Dallas, Texas, it was indicated the association would vigorously support the following points:

1. Repeal the Powerplant and Industrial Fuel Use Act. NARO believes the act is restrictive, contrary to the nation's stated energy policy, and directly responsible for shrinking markets for natural gas, creating curtailed production and shut-in wells. It should be repealed to allow industrial and utility boilers and coal-capable boilers to use natural gas and to use oil or other suitable low-priced fuel when natural gas is not available.

2. Repeal the Natural Gas Policy Act of 1978. This Act has not only created market distortions that are decimating the industry's growth, but is creating an atmosphere that may eventually result in a federal excise tax. Its repeal is also in the best interests of royalty owners who depend upon production from one or two small producing tracts for survival. The Act currently does not allow for decontrol of old (interstate 104 and intrastate 105) gas. Much of this production has been sold at artificially low prices at a fraction of its market value, and under the NGPA will forever be sold at restricted prices -- robbing one sector of royalty owners of a non-reproducible asset.

3. Vigorously Oppose Any Excise Tax on Natural Gas. The natural gas industry is a victim of four decades of restriction and regulation that depleted this asset at a market price far below other fuel sources. NARO believes royalty owners are fully taxed by the state and federal income tax apparatus and wellhead taxes levied against both oil and gas, and that any further discrimination against one single group is not only

unconstitutional but would seriously and irreparably damage an industry that is vital to our national security. We believe firmly that increased tax revenues resulting from any fair profits from increased drilling activity should constitute full payment to the U.S. Treasury for our economic risk. It should be noted that some producers are advocating a tax on old gas as an option to gain decontrol. This would be economic suicide for the royalty owners, who will not be able to pass the tax along or to spread their risks, and to the smaller producers and suppliers, who use this income to explore, while higher priced new gas provides the profit.

4. Restore Free Market Policies to the Natural Gas Pipelines by Deregulation. We believe current regulations do not offer an atmosphere for free market practices and are, thus, contrary to the best interests of the industry at large, the royalty owners of the nation and the consumer.

NARO welcomes President Reagan's initiative in proposing S. 615, which leads to the deregulation of all natural gas prices, where existing law will not.

On the subjects of re-negotiation of natural gas contracts and restrictions on natural gas imports, NARO has no specific recommendations.

We look forward to working with all interested parties to ensure the enactment of natural gas deregulation legislation by the end of 1983.

Chugach ELECTRIC ASSOCIATION, INC.
GAMBELL AT EIGHTH • P.O. BOX 3518 • Anchorage, Alaska 99501 • PHONE: 907 276-3500
TELEX: Chugach AHG
(RRC) 25 266

April 7, 1983

The Honorable James A. McClure
Chairman
Committee on Energy and Natural Resources
United States Senate
Washington, D.C. 20510

Subject: Market-Out Provision of S. 615

Dear Senator McClure:

I am writing to you and the Committee on Energy and Natural Resources regarding the very severe impacts that Section 316 of S. 615 would have on Chugach Electric Association, Inc., other Alaska electric and natural gas utilities and, consequently, on the majority of Alaska's approximately 410,000 residents.

Chugach is a non-profit electric cooperative participating in the programs of the Rural Electrification Act of 1936, as amended. As Alaska's largest electric utility, Chugach serves approximately 55,000 retail consumers within the Municipality of Anchorage and the western part of the Kenai Peninsula Borough to the south. In addition, Chugach is the wholesale power supplier for two neighboring electric cooperatives -- Matanuska Electric Association, Inc., and Homer Electric Association, Inc. -- and for the City of Seward's municipal electric utility. (See Attachment A.) Overall, Chugach has power supply responsibility for more than half the residents of Alaska.

To meet these broad power supply requirements, Chugach owns and operates five generation plants with a combined base load capacity of approximately 474 megawatts. Chugach also has a 9-megawatt entitlement from the federal Alaska Power Administration's Eklutna Project. Of Chugach's five power plants, four with a combined capacity of approximately 459 megawatts are fueled by natural gas. The fifth plant is a 15-megawatt hydroelectric facility. (See Attachment B.)

As the above figures indicate, Chugach is heavily reliant on natural gas as a generation fuel. The Municipality of Anchorage's Municipal Light & Power Department, although smaller in size than Chugach is similarly dependent on natural gas for its generation needs.

Chugach obtains its natural gas from two sources, both local and neither a part of any interstate pipeline system. In fact, unlike virtually every other state, there are no interstate pipelines in Alaska; the nearest is more than 1,500 straight-line miles distant.

Beluga Station, Chugach's major generation plant with a 326-MW capacity, is fired by natural gas from the surrounding Beluga River Field. The gas field -- and plant -- are located in a remote area approximately 45 air miles west of Anchorage across Cook Inlet. (Attachment A.) Other than the collection system for the power plant, there is no pipeline from the Beluga River Field. The plant has no alternate fuel-burning capability.

Chugach purchases its Beluga Station gas under long-term contract directly from the three Beluga River Field producers -- Chevron U.S.A., Atlantic Richfield Company and Shell Oil Company. Under virtually identical contracts with the three producers, Chugach currently pays approximately 20¢/mcf, plus approximately 6¢/mcf in state severance taxes. Chugach has approximately 373 million/mcf remaining under its Beluga contracts, which expire in 1998.

For its three other gas-fired plants (International Station and Knik Arm Power Plant in Anchorage, and Bernice Lake Power Plant at Nikiski), Chugach purchases its fuel under Alaska Public Utilities Commission-approved tariff from the local gas distributor, Enstar Natural Gas Company of Anchorage. Enstar purchases all its gas under long-term contracts from local fields in the Cook Inlet Basin; it does not produce its own gas. The present cost of Enstar gas to Chugach is $1.60/mcf.

In 1982, Chugach paid a total of $11 million for 24.3 million/mcf for its four gas-fired generation plants.

Given the lack of access to interstate natural gas pipeline systems taken for granted in most every other state, Alaska utilities and their consumers are a virtual captive market to local producers on which we depend for generation and direct-heating fuel. Unlike our counterparts in the Lower 48 states, we do not have the ability to "shop around" for gas supplies.

It is evident that Section 316 -- the market-out provision -- of S. 615 could have devastating impacts on most Alaska utility consumers. (With the impending construction of a first-ever transmission line between Anchorage and Fairbanks, that part of Interior Alaska plans to "import" cheaper, gas-fired electricity from the Anchorage area.) If Section 316 were to be enacted without consideration of Alaska's special circumstances, rate increases of 100 percent or more are likely. (See Attachment C.) I am also enclosing a copy of a resolution (Attachment D) recently passed by the Alaska Rural Electric Cooperative Association. Cooperatives are the predominant form of electric utility in Alaska.

I urge you and your fellow committee members to provide Alaska consumers -- already faced with among the highest living costs in the nation -- with protection from the grave consequences of Section 316. Senator Murkowski and other members of the Alaska congressional delegation already have been alerted to this problem. Chugach stands ready to provide other information or assistance as may be necessary. Chugach respectfully requests that this letter be made a part of the formal hearing record for S 615.

Very truly yours,

Walter V. Truitt, Jr.

Walter V. Truitt, Jr.
General Manager

WVT/pbl

Enclosures

cc: Senator Frank Murkowski
Senator Ted Stevens
Congressman Don Young

RECOMMENDATIONS
OF THE
FAIRFAX COUNTY BOARD OF SUPERVISORS
BEFORE THE
SUBCOMMITTEE ON FOSSIL AND SYNTHETIC FUELS
OF THE
COMMITTEE ON ENERGY AND COMMERCE
HOUSE OF REPRESENTATIVES
CONCERNING
PROPOSED CHANGES
TO THE
NATURAL GAS POLICY ACT

April 25, 1983

Prepared by
Andrew E. Tompros
Christopher J. Rozycki

NATURAL GAS DECONTROL

In the interest of promoting efficient allocation of our nation's scarce energy resources, while continuing to be highly concerned for the welfare of all energy consumers, the Fairfax County Board of Supervisors (Board) respectfully submits the following opinions and recommendations to the United States House of Representatives for consideration in the current hearings before the Subcommittee on Fossil and Synthetic Fuels of the Committee on Energy and Commerce involving natural gas decontrol. The opinions of the Board are predicated on our desire to maximize economic efficiency, support national energy policy goals, preserve the rights of the individual states to regulate the distribution and sale of natural gas, and protect natural gas consumers from inherent market imperfections that may lead to overpricing and to excessive profits by various segments of the natural gas industry.

For the past several months, we have read of and experienced tremendous increases in the price we pay for natural gas. We not only currently pay these high prices, but many experts feel that the trend of escalating prices will continue under existing laws. It is time to modify such laws so as to allow the natural gas industry to once again provide natural gas at reasonable prices.

In an effort to correct inconsistencies in the national market for natural gas, to reduce regulatory impediments to efficient natural gas allocation, and to promote natural gas exploration, Congress in 1978 passed the Natural Gas Policy Act (NGPA). One basic premise underlying the NGPA was that oil prices would continue to rise, at least until 1985. Oil prices, however, began to fall in 1982 and continued falling throughout 1982 and into 1983. Natural gas prices have continued their steady rise, causing them to exceed oil prices in some instances, and leading to significant excess supplies of gas. As long as oil prices were rising it appeared that the NGPA was achieving its desired results. An efficiently operating energy market should keep oil and gas prices competitive. This however, has not happened.

It is apparent that if Congress desires to maintain competitive parity between oil and natural gas prices, then modifications must be made to the NGPA to insure not only upward flexibility of natural gas prices but also downward flexibility. One of the primary shortcomings of the NGPA with respect to price flexibility results from its "perpetuation of pipeline unaccountability in the natural gas industry." 1/ While a competitive market for natural gas supplies may exist at the producer level, it is critical to remember that significant monopoly power (thus market control) still lies in the hands of the natural gas pipeline companies. To allow these pipelines to act in an unfettered manner is to ignore existing market imperfections that cannot be corrected through decontrol, and to invite a significant misallocation of natural gas resources, thus defeating the purpose of decontrol entirely.

1/ Statement of Laura L. Murrell, Chairman of the Kentucky Public Service Commission, on behalf of the members of the National Association of Regulatory Utility Commissioner March 12, 1983, before the Senate Committee on Energy and Natural Resources.

In recent months, legislation to amend the NGPA has been proposed by a number of parties in both the Senate and the House of Representatives. The most publicized of these legislative amendments are those proposed by the Reagan Administration and found in the Senate and House bills S.615 and H.R. 1760. The administration approach would accelerate decontrol of natural gas, limit the automatic pass through (PGA adjustments) of price increases by pipeline companies, allow either party in a contract to renegotiate that contract, and eliminate disincentives for low cost gas use. Other bills call for varying degrees of increased control or decontrol.

In the opinion of the Board, it is unwise to speculate as to what may happen in the future with the gas market and the many factors affecting this market. The natural gas industry is directly affected in both positive and negative ways by several variables which are themselves difficult to predict such as the price of oil, the state of the national and international economies, conservation measures, and consumer alternatives to natural gas. It is for the most part the effect of these factors that has caused the distortions now existing in the natural gas market. And with our limited ability to accurately predict the future state of the U.S. and world economic and energy picture, it seems futile to make major changes in current policy.

For these reasons we believe that it may make matters worse if the NGPA undergoes substantial revisions at this time.

However, there are certain policies which the Board feels Congress can support that will aid in getting the NGPA back on the proper track and move the natural gas industry closer to a competitive market where supply and demand requirements are more closely matched. These policies deal with the renegotiation of contracts and provisions within such contracts currently in effect between producers and suppliers. More specifically, we feel that the "take-or-pay" provisions and "most favored nation" clauses of such contracts are in vital need of revision or elimination in order to allow natural gas supplies and prices to be responsive to pipeline and consumer demand. Just recently several companies have found it necessary to push for renegotiation of contract provisions dealing with these issues. Major gas producers such as Shell Oil, Sun, and Atlantic Richfield are renegotiating take-or-pay and other contract provisions with gas line customers. Other companies, like Columbia Gas Transmission Corporation, have found it necessary to ignore such contract provisions even when a renegotiated agreement has not been reached. Of course, such actions are likely to result in lengthy and costly legal challenges.

The Board strongly endorses the position developed by the National Association of Regulatory Utility Commissioners (NARUC) as stated by Laura L. Murrell, Chairman of the Kentucky Public Service Commission, on March 12, 1983, before the Senate Committee on Energy and Natural Resources, and Joshua M. Twilley, Commissioner of the Delaware Public Service Commission on April 15, 1983, before the Joint

Economic Committee of Congress. Decontrol of the competitive segments of the natural gas industry is highly desirable. NARUC's concerns about the pipeline companies are both correct and clearly worded. We feel compelled to restate NARUC's concise statement of the problem:

> Through the operation of Section 601, as interpreted by the FERC, pipeline companies are able to recover automatically their purchased gas costs, even if the company has failed to obtain the lowest cost supplies available to it. This unaccountability problem is greatly exacerbated by the fact that pipelines usually assure their supplies by means of relatively long-term contracts with natural gas producers. Producer-pipeline contracts routinely include provisions which guarantee the producer a constant cash flow, regardless of the market-ability of the gas sold under the contract, but which make it very difficult for the pipeline to respond to market changes. I refer, of course, to indefinite price escalator, take-or-pay, and most-favored-nation clauses. With the assurance of automatic purchased gas costs passthroughs, the pipeline has no real incentive to avoid such onerous contract terms. The risk is shifted to the distribution companies, and ultimately, to their ratepayers. 2/

One highly controversial component of the Administration's proposal is the disposition of "old gas" (gas available from wells drilled prior to 1977). The Administration has proposed that this gas be deregulated immediately. Most experts, however, believe that decontrol of old gas will have only a slight, if any, downward effect on the average price of gas to consumers and that it will result in a gigantic windfall to the top 20 producers, who currently control over 70%, of the old gas produced. These 20 include:

2/ Ibid.

1. Mobil
2. Exxon
3. Texaco
4. Gulf
5. Shell
6. Tenneco
7. Standard of Indiana
8. Standard of California
9. Phillips
10. Atlantic Richfield
11. Getty
12. Cities Service
13. Union
14. Superior
15. Sun
16. El Paso
17. Conoco
18. Pennzoil
19. Marathon
20. Columbia

The windfall profits for these companies for the period 1983 - 1990, resulting from higher old gas prices, could exceed $50 billion. Furthermore, decontrol of old gas will reduce incentives to search for new gas and hurt the nation's progress toward energy independence.

To restate the Board's position: We strongly support the NARUC proposal to change the 1978 NGPA to eliminate the unaccountability of pipeline companies with regard to the purchased gas adjustment (as manifested by the existence of indefinite price escalator, take-or-pay, and most favored nation clauses); and we stress the maintenance of old gas price controls.

LACLEDE GAS COMPANY
SAINT LOUIS

L. M. LIBERMAN
CHAIRMAN OF THE BOARD
AND PRESIDENT

April 5, 1983

The Honorable James A. McClure
United States Senate
3121 Dirksen Senate Office Building
Washington, D. C. 20510

Dear Senator McClure:

Laclede Gas Company was not invited to testify at hearings before your Committee, although I was invited to testify before Congressman Sharp's Subcommittee on Fossil and Synthetic Fuels of the Committee on Energy and Commerce, House of Representatives. I am sending under separate cover copies of my testimony in the House of Representatives and am available to testify before your Committee if you so desire.

Meanwhile, it has come to my attention that Mr. Butler, Chairman of the Federal Energy Regulatory Commission (FERC), has testified before your Committee on March 12, 1983, and is scheduled to testify again. Since Mr. Butler, in his testimony on March 12, at transcript pages 712 and 738 has attacked my company as having a conflict of interest due to the fact that we are both a gas producer and a gas distributor, and because Mr. Butler obviously doesn't know what he is talking about, I want to both set the record straight and record my violent objection to Mr. Butler's irresponsible and inaccurate characterization of both our activities and our motives.

We are totally opposed to decontrol, we were opposed to the passage of the Natural Gas Policy Act (NGPA), think the NGPA has been a disaster, and we call for a freeze of natural gas prices while the Congress straightens out the current mess. While the NGPA is fatally flawed and could only have resulted in massive transfer of wealth from the Nation's gas consumers to the Nation's gas producers, Mr. Butler's leadership of the FERC in that agency's implementation of the law has exacerbated the problems indeed. Despite the fact that Mr. Butler and the FERC have the statutory obligation to protect the consumer under the Natural Gas Act, the activities of the FERC have been aimed at trying to accomplish administratively deregulation not permitted by the law, and in addition, at almost every opportunity that the FERC has had, to interpret the NGPA in a way beneficial to the producers or to the consumers, Mr. Butler and the Commission have decided in favor of the producers.

I will document this charge at the end of this letter.

Mr. Butler contends that Laclede's position is motivated by its being a producer of deep natural gas. How we could be opposed to decontrol and in favor of a price freeze on production and be deemed to be doing so pursuant to our interest as a producer defies my imagination.

But, our hands are indeed clean. The producer business interest to which Mr. Butler refers is carried on by Laclede as a regulated business under the jurisdiction of the Missouri Public Service Commission and regardless of the prices which Laclede obtains for its production, all that the Company is permitted to earn is the same regulated rate of return on a cost of service basis as we are permitted to earn on our distribution business. We may be one of the few producers in the nation which returns all the benefits of gas exploration to its consumers and certainly I suspect that none of the companies regulated by Mr. Butler do that.

Mr. Butler accuses us of getting high prices for deregulated gas. In the first place, only 6.7% of our 2 billion cubic feet of annual production is deep deregulated gas with the remainder sold under NGPA ceiling prices. Secondly, we sell no gas as high as the $6.00/Mcf figure mentioned by Mr. Butler. Thirdly, we are obligated to the royalty owners to obtain market prices for our production, and as a matter of fact are the subject of a suit by certain royalty owners in the State of Texas based on the allegation that some of our gas was sold at below market prices. Next, I would point out, as I have previously mentioned, that all of our gas is regulated as to return on investment. Finally, however, Laclede sells gas to its supplier, Mississippi River Transmission and repurchases such gas at the same price it is sold to Mississippi plus, of course, the additonal cost of storage and transportation.

Mr. Butler, on the contrary, accuses us of selling at a high price and repurchasing at a lower or average price. Such is completely false. Laclede Gas Company has been and is probably the leading opponent in the Nation of "rolled-in" or average costing of natural gas sales. The "rolled-in" or averaged costing concept is a costing technique sponsored by and favored by the FERC, which technique foists off millions of dollars of cost needlessly on the residential gas consumers. There can be no real argument that the FERC has the authority to end this "rolled-in" technique, but that it refuses to do so. To accuse us, the leading opponent of this concept, of being in favor of it is indeed disingenuous.

Mr. Butler has no excuse for the errors he has made. The FERC approved the gas sales and purchase arrangement between Laclede and Mississipppi River Transmission and he should not be excused from not knowing the facts about an arrangement which he, himself, approved.

I earlier referred to Mr. Butler, and the Commission which he heads, as being biased against the consumer and in favor of the producer. I call your attention to the following activities which indicate that bias. The Commission has failed to determine what the Nation's gas supply is and to determine what the ultimate market needs really are. It has made no independent investigation of market elasticity, true supply requirements, and what markets should be served. The Commission, despite the legislative injunction of the NGPA to do so, has failed to apply the "Fraud and Abuse or Similar Grounds" limitations of the NGPA with respect to the pipelines' purchase of high-cost gas. The Commission has failed to use incremental market tests in determining appropriate prices for new gas by continuing to permit pipelines to "roll-in" or average their costs in their allocation and ratemaking processes. The Commission has made well-publicized efforts towards back door deregulation, has failed to apply strict contract limits to restrain NGPA prices, and has failed to inhibit unneeded purchases by permitting pipelines and producers to include "take-or-pay" provisions in their contracts. It has taken other actions which have enlarged the volume of gas which can qualify for higher stripper well prices. It has provided excessive increases in the price of tight formation gas, has abandoned historic determinations of the appropriate Btu adjustment to gas prices, and, most recently, it has allowed producers to recover production related costs above the NGPA ceiling prices. It has also allowed pipelines to impose minimum commodity bill tariffs and approved pipeline importation of additional unneeded high-priced liquified natural gas. Each of these activities is addressed in some detail in my testimony before the Sharp Subcommittee on August 6, 1982 and March 23, 1983.

For all the foregoing reasons, I feel compelled to write you and correct the record in regard to Laclede Gas Company and FERC's activities, particularly under the leadership of Chairman Butler. As indicated, I would be pleased to testify before your Committee.

Cordially,

Lee M Liberman

LML/md
cc: Senate Committee on Energy and Natural Resources

TESTIMONY OF LEE M. LIBERMAN
CHAIRMAN AND PRESIDENT
LACLEDE GAS COMPANY
ST. LOUIS, MISSOURI

BEFORE THE SUBCOMMITTEE ON FOSSIL
AND SYNTHETIC FUELS
COMMITTEE ON ENERGY AND COMMERCE
UNITED STATES HOUSE OF REPRESENTATIVES

MARCH 23, 1982

Mr. Chairman, I appreciate your invitation to testify before this Subcommittee. I join others in commending this Subcommittee's efforts to come to grips with one of the Nation's most pressing domestic problems -- the unprecedented and unjustified increases in prices for natural gas at the wellhead that have occurred since the enactment of the Natural Gas Policy Act of 1978. I also commend Congressmen Young and Gephardt and Senators Eagleton and Danforth of our Missouri delegation for the leadership they have shown in proposing constructive legislative solutions to the crisis that now exists in the natural gas market. They have demonstrated deep concern for the suffering of natural gas consumers who have been virtually stripped of all protection from exorbitant price increases by the NGPA and Federal Energy Regulatory Commission decisions implementing that Act. We at Laclede fully support the efforts of these legislators to restore order to the natural gas markets.

I do not intend to repeat my August 6, 1982 testimony before this Subcommittee describing the hardships facing natural gas consumers in the St. Louis area. I regret that I must inform the Subcommittee, however, that the situation is even worse today despite a warm winter. And there are absolutely no prospects for improvement.

Over the past few months, the FERC has delivered four more body blows to the Nation's natural gas consumers. First, the FERC's recent decision to allow producers to recover production-related costs above the NGPA ceiling prices will, by FERC's own admission, increase the cost of gas to the consumer by some $2 billion per year. Second, FERC permitted the minimum commodity bill tariff imposed by United Gas Pipe Line Company on Laclede's supplier, Mississippi River Transmission Corporation, and four other major interstate pipelines, to go into effect on October 1, 1982. If this tariff is allowed to stand, we estimate that Laclede's customers alone will be forced to pay an additional $98 million annually. Third, FERC's decision with respect to Trunkline's importation of liquefied natural gas will cost our customers an additional $29 million annually. Finally, in a recent United rate case, the FERC has rejected a concept which we and others had finally gotten them to embrace and which the courts have approved, which concept assigns the cost of high priced gas to low priority users, thereby both saving money and conserving the Nation's natural gas resources.

Mr. Chairman, we simply do not have a competitive market for natural gas at the wellhead. There is a substantial excess supply of natural gas and yet prices are not dropping below the NGPA ceiling prices. We often overlook the fact that the NGPA ceiling prices are maximums, and if the market were truly competitive there is nothing in the current law to prevent the market from responding to that oversupply through prices dropping below the NGPA imposed ceilings.

This is convincing evidence anew that the natural gas market does not respond to competitive pressures -- a fact long recognized by the Supreme Court */.

I strongly disagree with those who contend that all we need to do to create a competitive natural gas market is to decontrol all natural gas, and who cite the lower gasoline prices which came in the wake of the decontrol of oil as the rationale for such position. I believe oil prices will continue to fluctuate largely at the whim of the OPEC cartel. These prices have skyrocketed more than twelve-fold in ten years and I take little comfort that that ratio has dropped back temporarily to only ten-fold.

Moreover, in looking at the lower prices which followed in the wake of decontrol of domestic oil prices, there is a tendency to establish a causality that may not, in fact, exist. Decontrol of domestic oil prices came almost concurrently with the growing impact of the worst recession which this country and the world have experienced since the Great Depression. A depressed economy with its attendant under -- utilization of the Nation's industrial productive capacity

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*/ See Permian Basin Area Rate Decision, 340 U.S. 747, 793-794 (1968) and FTC v. Texaco, Inc., 417 U.S. 380, 397-399 (1974).

uses substantially less energy and accordingly less oil than a country which is fully employed. Thus, the decline in demand for oil occurred at the same time as decontrol. It is far more rational to hypothesize the severe recession as the cause of the decline in oil prices than it is to declare that such came as a result of the decontrol itself.

This is particularly true when we consider that the price of oil has been decontrolled by Congress but continues to be controlled by a cartel -- a cartel which is now struggling to overcome the impact on it of the severely reduced demand -- but a cartel which in my opinion is far from moribund. I believe that, as soon as the world economy recovers, oil prices will harden and that, with a robust economy, we can expect to see the OPEC cartel operating at full effectiveness.

But oil at least has some elements of strong competition where natural gas does not. The regulation of the distribution and transportation segments of the industry indicates the certain knowledge on the part of both the various state legislatures and the U.S. Congress that the market end of the business is not competitive in any usual sense of the word. This must mean that, absent regulation, natural gas could be priced to the consumer at prices much higher than what the otherwise anticipated market clearing price would be -- otherwise there would be no justification for regulation.

If one accepts the logic of this premise, it becomes obvious that without a market which will reject natural gas when its price exceeds that of oil or other competing fuels, deregulation of the producer will only mean that whatever excessive price the distributor could have demanded, absent regulation, will now become the market price, with the producer capturing the monopolistic profit in lieu of that profit being captured by the distributor or the transporter. Accordingly, regulation of the distributor and the transporter will be a nullity.

But the production business itself is not freely competitive as this Congress and the U.S. Supreme Court have long recognized. There is only one way for a producer to sell gas, and that is delivery through pipes which connect the producing well to the consumer. Once installed, the pipelines have fixed investments dedicated to fixed supply sources. The pipelines can't move about to buy someone else's gas because it is cheaper without abandoning some part of their investment. These conditions generally restrict competition and have led to long-term contracts at prices subject to upward escalation only and have led to demand for minimum takes. Such terms of sale would never exist in a fully competitive business.

In the oil business, oil can be transported by pipeline, tanker, barge, or truck. Long-term contracts at fixed prices are nonexistent and buyers of oil have a source of supply in which the price can readily respond to changes in demand.

The best evidence of the difference between oil and gas pricing at the producer level is the existence of a spot market for oil -- there is no such market for natural gas, no posted prices, merely long-term upward escalated price contracts.

The competitiveness of the oil marketplace is so well-known as to not require further elucidation -- but there is usually "only one gas company in town," and our customers have large investments in gas burning equipment which they would have to abandon in order to switch from gas to another fuel. I estimate that it would cost our average residential customer approximately $2,000 to convert his heating equipment to the use of oil or electricity, and I guess that most of these customers don't have the $2,000. That is why prices can rise above what we would otherwise anticipate might be the market clearing level.

Mr. Chairman, it is because of this lack of competition that I support permanent controls of natural gas prices at the wellhead. Accordingly, I believe that Congressman Young's bill -- H.R. 1422, the Natural Gas Fair Pricing Act -- is the long-term approach to natural gas pricing that Congress should adopt. A producer of any good, service or commodity will supply its customers so long as it earns a reasonable rate of return. We should not give natural gas producers returns substantially greater than necessary to elicit supply. Congressman Young's bill is designed to assure prices high enough to attract supply without transferring huge monopoly rents from natural gas consumers to natural gas producers.

While I urge you to adopt this long-term solution, I recognize that many -- including some of the members of this Subcommittee -- do not yet share my conviction that natural gas prices cannot respond to competitive forces because of the institutional barriers enumerated heretofore. That probably means that we must do something now while future study is given to the long-term solution.

I believe that H.R. 2154, the Natural Gas Consumer Relief Act introduced by Congressman Gephardt, and co-sponsored by Congressmen Young, Clay and other members of the Missouri delegation, provides the type of immediate price relief that natural gas consumers and indeed the natural gas industry must have to reorder the current market disarray. Frankly, I fear that the survival of our industry is threatened if immediate steps are not taken to halt the relentless increases in prices that have occurred under the NGPA. H.R. 2154 does this by modifying and extending the NGPA price controls. H.R. 2154 also permanently reforms pipeline-producer contracting practices and mandates effective oversight of pipeline natural gas purchasing practices and rate design. The modification and extension of controls, coupled with these contract and pipeline ratemaking changes, will stabilize the natural gas market while a long-term solution along the line of Congressman Young's bill is being hammered out. I am pleased to have learned that Senators Eagleton and Danforth, together with a number of their colleagues in the Senate, plan to introduce legislation similar to the Gephardt bill.

To expedite my testimony, I would like just to summarize the principal legislative actions Laclede believes must be taken.

First, all future wellhead price increases should be cost-based and producers' returns should be limited to just and reasonable levels. Congressman Young's bill would carefully put in place permanent price protections of this kind.

Second, absent permanent controls, natural gas consumers and the industry must have an immediate rollback of ceiling prices as Congressman Gephardt's bill provides. We are comfortable with a January 1, 1982 rollback date in view of the plainly uneconomic increases in natural gas prices that have occurred over the past year. Obviously, these pricing reforms can have little impact unless controls are extended for at least two more years.

Third, we support the elimination of indefinite price escalators and most-favored nation clauses accomplished by the Gephardt bill. We also favor, in principle, its approach to partially defuse take-or-pay clauses and market-out options.

Fourth, I believe Section 601(c)(2) of the NGPA must be amended so that pipeline customers have some way to challenge the pipeline purchasing practices that so vitally affect them. As you know, the FERC has to date completely abdicated its responsibility in this regard. As I read Section 104 of H.R. 2154, pipelines will have to offer convincing evidence that their purchases of high priced gas when lower priced supplies are available is in their customers' best interests before passthrough is to be allowed.

Fifth, Section 107 of the Gephardt bill will require the FERC to respond to Laclede's contention that the only approach to pipeline rate design that makes economic sense is to require pipelines to pass through the costs of high priced gas directly to their marginal low priority industrial and electric generation boiler fuel users. This is the only market for natural gas which can react with true price sensitivity and the FERC has suceeded in shielding this market from such price sensitivity by permitting rolled-in or average pricing. This market should only be served if it is willing to pay the marginal cost of the gas it is using. Thus, we will husband our gas service for our high priority residential, commercial, agricultural and industrial process customers who are unable to switch to alternative fuels. At a minimum, this approach will force the prices of high cost gas down to residual fuel oil levels.

Sixth, something must be done about imports. It makes no sense for high-priced imports to increase 7.3 percent last year while domestic natural gas consumption drops 8.1 percent and low-cost domestic production remains shut-in.

I will close by briefly stating my reaction to the Administration's decontrol bill, H.R. 1760. I doubt that my reaction will be a surprise to you. The Administration's bill is based on the premises that (1) production of natural gas at the wellhead is competitive, (2) that producers are somehow entitled to reap huge economic rents from natural gas consumers, and (3) that natural gas prices should track the oil prices set by the OPEC cartel. As I have indicated, I believe that the facts do not support the first premise and that the other two are simply bad public policy. The so-called consumer protection provisions of H.R. 1760 in fact will provide no protection except at the expense of the pipeline industry, which does not have the assets to provide such protection. Even if this protection is workable, it will disappear in 1986. Further, the repeal of the FERC's certification and abandonment authority under the Natural Gas Act will undermine the security of interstate natural gas supplies.

I therefore urge you to reject H.R. 1760 and to enact H.R. 1422, together with the necessary contract and pipeline tariff reforms, or, in the alternative, H.R. 2154.

Mr. Chairman, thank you again for inviting me to testify today and I would be pleased to respond to any questions you or any of the other members of the Subcommittee might have.

Comments of Lincoln Electric System
on the
Natural Gas Consumer Regulatory Amendments of 1983

Presented to

Senate Energy and Natural Resources Committee

April 11, 1983

By
Richard Kahle, P.E. Senior Engineer
Lincoln Electric System

Title I - Purchased Gas Cost

Lincoln Electric System (LES) does not have any comments on this portion of the Act.

Title II - Removal of Wellhead Price Controls and Repeal of Jurisdiction over Certain First Sales; plus

Title III - Transitional Price and Contract Provisions; plus

Title IV - Removal of Impediments to Interstate Movements of Gas

Though Lincoln Electric System does not have comments on the specific language of the provisions of Titles II, III, and IV, we do have the following general comments with regard to the decontrol, deregulation, and interstate movement of natural gas.

1. To the extent that regulation of the price of natural gas has kept the price of gas artificially low, residential and commercial electric customers of LES have subsidized natural gas users. This subsidy occurs in two ways.

    a. The artificially low pricing of natural gas in the past has reduced the number of customers which would use electric heating. Since the electric load on the LES system peaks in the summer when air conditioning units operate, we have spare electric generating capability in the winter. Better use of this investment in the winter through more electric heating would reduce rates for all electric customers in our area.

    b. To the extent that artificially low natural gas prices have reduced the supply of natural gas through reduced production, development, or exploration, the total supply of fuels has been constrained. By reducing the total supply of fuels and by forcing the use of oil or other alternate fuels because gas was not available, the demand for oil, coal, and other alternate fuels has been higher than it would be with a deregulated natural gas market. Reduced total supply of fuels and increased demand for oil, coal and other alternate fuels has resulted in higher prices all energy including electricity.

2. Regulation of the wellhead price of natural gas creates significant additional uncertainty in the price and supply of natural gas, the price of other fuels, and the growth of electric load from electric heating. This additional uncertainty burdens electric ratepayers with additional costs in several ways:

   a. Additional time and effort is required to account for this uncertainty in planning.

   b. Additional investments may be made to protect against the adverse results from this uncertainty.

   c. Because of the long lead times in planning electric power plants, additional uncertainty increases the chance that the future plan committed to will not be the lowest cost plan for actual circumstances.

Title V - Repeal of Certain Restrictions on Natural Gas and Petroleum Use and Pricing.

Lincoln Electric System supports the provisions of the portion of this act which eliminate the restrictions of the Fuel Use Act on the use of natural gas or petroleum in power plants or major fuel burning installations and we support the repeal of the incremental pricing system. Lincoln Electric System takes these positions for the following reasons.

1. Restricting the use of petroleum or natural gas in power plants effectively eliminates the least expensive way to generate electricity for certain portions of an electric systems load and increases rates to the electric ratepayers, particularly residential and commercial customers.

   Portions of an electric utilities load which occur less than half the time during a year may be served at a much lower cost by units which burn petroleum or natural gas. These units, such as combustion turbines, combined cycle units, diesel units, can not burn coal. Preventing the use of natural gas or petroleum in these units will many times force the substitution of units such as coal units, which cost 2 to 4 times as much to build. The additional cost to build the substitute unit is never recovered from the less expensive fuel costs because the unit is not required for enough hours during the year. These units typically serve air conditioning load (as in the case of LES) or heating load (some other utilities) of residential and commercial customers.

2. By increasing the demand for coal, the price of coal is increased and to the significant extent coal is used for electric generation electric rates are increased.

3. Additional uncertainty for planning is created because legislated restrictions on the use of fuels can come and go with the changing of elected representatives or the attitudes of constituents. This uncertainty can create additional costs as outlined above. The permanent absence of legislated restrictions represents a more stable environment for planning.

4. Incremental pricing for certain classes of users is another form of artificial pricing such as price controls and may shift costs to adversely affect electric ratepayers.

Official Committee File

OPCON

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SENATE COMMITTEE ON
ENERGY AND NATURAL RESOURCES
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APR 5 1983

The Honorable James A. McClure, Chairman
U.S. Senate Energy and Natural Resources Committee
Dirksen Senate Office Building, Rm. SD 361
Washington, D.C. 20510

Dear Senator McClure:

Since testifying before your Committee March 12, 1983 regarding natural gas price deregulation, I have noted that certain leaders in positions of responsibility are badly misinformed as to the consequences of total natural gas price deregulation. For example, the Reagan Administration's proposal will not improve the national welfare by increasing the incentives to develop the least costly gas first. Our modeling results and experience show that this proposal will do just the opposite; it will decrease the incentive prices for not only new, deep gas but also new, shallow gas; and accordingly, it will decrease significantly drilling activity for reserve additions. (See enclosed Figures 1 and 2.) Why, you might ask, does this occur. Simply stated, the natural gas market is too far out of economic balance; it must be normalized step-wise.

Significant progress toward resolution of the fundamental problem may be achieved by deregulating new, shallow gas prices (e.g., Section 102). Alternatively, letting new gas from wells of all depths find its market-clearing prices would work toward resolving the fundamental problem. Either deregulating new gas prices or eliminating new gas well depth requirements (i.e., 15,000 feet and deeper) would normalize the economics of the gas market.

As my testimony of March 12 shows, the Administration's proposal would not normalize the nation's gas markets. Instead, it would result in a total breakdown of these markets starting in 1989. (Incidently, alternative proposals to roll back and freeze prices would result in a total breakdown much sooner.)

I would appreciate your entry of my letter in your Committee's Hearings Record.

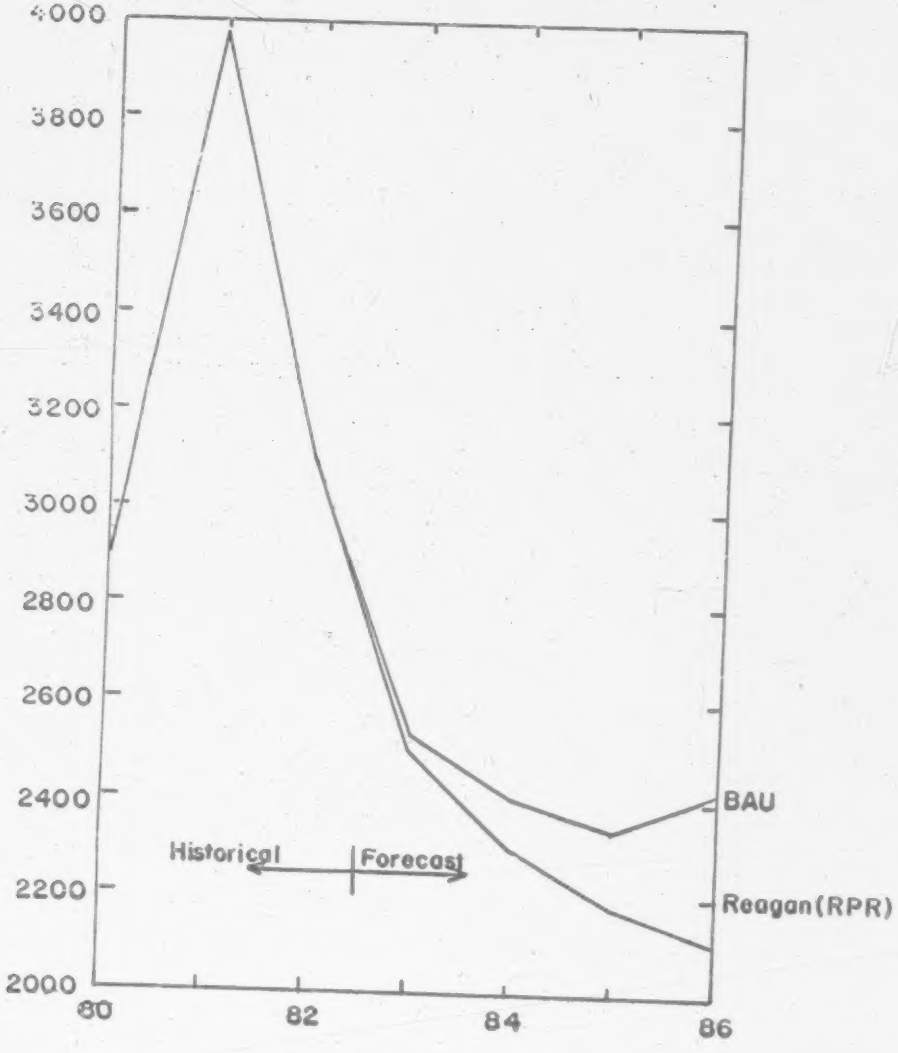
Please feel free to call upon me if I can be of further assistance. We stand ready to provide detailed policy evaluations within 24 hours. In addition to providing fast turnarounds, our models are credible and straightforward.

Sincerely,

Russell G Thompson
Russell G. Thompson
Chm., Pres., and C.E.O.
of Oper. Econ., Inc. (OPCON)

c.c.: U.S. Senator John Tower
U.S. Senator Lloyd Bentson
U.S. Energy-Secretary Donald Paul Hodel

Figure2, Forecast of U.S. Active Drilling Rigs



RMA
RUBBER MANUFACTURERS ASSOCIATION
1901 PENNSYLVANIA AVE., N.W. • WASHINGTON, D.C. 20006 • (202) 828-7700

STATEMENT
OF THE
RUBBER MANUFACTURERS ASSOCIATION

The Rubber Manufacturers Association ("RMA") is a national trade association representing more than 200 companies engaged in the production of various types of rubber goods including tires, tubes, hose, belting, footwear, gaskets, and sealing devices, as well as hospital and surgical supplies and sports equipment. RMA's membership accounts for approximately 90 percent of all rubber production in the United States. RMA represents a spectrum of companies ranging from large, well-known tire and rubber companies to small, family-run businesses.

The rubber industry is the 11th largest energy consuming industry in the United States. Natural gas represents approximately half of the energy consumed by the industry. In addition to the gas used to heat our plants and process our products, our industry needs an assured supply at the lowest reasonable cost because natural gas is also a feedstock for many of our raw materials as well as a nonsubstitutable process fuel to manufacture these same products.

The RMA wishes to go on record as generally supporting the major provisions of the Natural Gas Consumer Regulatory Reform Amendments of 1983 (S.615 and H.R.1760).

The Natural Gas Act, after its extension by the Phillips Decision of 1955, led to a steadily diminishing supply which culminated in the disastrous winter of 1976-77. Suddenly there was not enough natural gas to support industrial and commercial needs as well as residential.

The Natural Gas Policy Act ("NGPA") of 1978 was supposed to solve this problem, but instead produced an even worse situation as "take or pay" clauses, escalator clauses, and falling oil prices coupled with conservation and recession led to runaway prices in the presence of an oversupply of natural gas. Only in an over regulated and artificially controlled market could such a phenomenon exist.

This over regulated market has not and cannot respond to the changing supply/demand situation. The demonstrated failure of a controlled market over the last 25 years clearly indicates that an orderly phase out of government controls is necessary and desirable.

Most agree that the current gas price situation is due to the disruption of the current marketplace by the Natural Gas Policy Act and more specifically by the following parts:

"Take or Pay" provisions;

Escalator clauses; and

Anticipation of a roll-in for high price gas using low cost gas as a cushion.

There appears to be a general consensus that the answer to the current problem is renegotiation of existing contracts to reflect the 1983 marketplace rather than the 1977-78 marketplace when the NGPA was planned and passed.

In renegotiating contracts, concerns of three groups must be equitably treated: consumers, well owners, and pipeline companies. The proposed "Natural Gas Consumer Regulatory Reform Amendments of 1983" considers the needs of all parties involved from the producer of natural gas to the consumer whether the end user be industrial, commercial or residential.

Consumers

The consumer group, both residential, commercial, and industrial, is protected by the following:

1. All existing escalator clauses are limited until January 1, 1986 by the gas cap which is the average price of all renegotiated and new gas contracts calculated on a rolling three month average with a one month lag for imposition.

2. Through January 1, 1986 automatic pass throughs (automatic purchase gas adjustments - which have been the source of the largest increases in gas prices) are limited to the rate of inflation unless approved by FERC after a public hearing.

3. No pipeline will be permitted to take gas from its own or its affiliate's wells at a rate of take higher than its rate of take for any less expensive gas. Currently, FERC can only limit contracts in cases of fraud and other illegal actions.

4. Deregulated gas prices, which are currently spiraling rapidly upward, are limited to current prices until the gas cap rises above that price.

Well Owners

1. Producers are permitted to renegotiate their current contracts on old gas in order to realize a higher return on their investment. They are, however, restrained as to the price they demand by the pipeline company's concern for marketability. They are also encouraged to renegotiate by the possibility of the pipeline using the "market out" provision after January 1, 1985.

2. The well owner is protected from being unable to sell his gas at a reasonable price by the requirement that the pipeline must transport as a common carrier to another buyer.

3. The well owner is permitted to sell gas in either the interstate or intrastate markets.

4. Option for reducing takes by the pipeline company expires on January 1, 1986.

Pipeline Companies

1. Pipeline companies receive the opportunity to avoid high "take or pay" contracts and will have the opportunity to reduce previously agreed upon deliverability to 70% on all existing contracts.

2. Pipeline companies are able to insure marketability of its average price by access to all competing domestic sources of natural gas.

CONCLUSION

As stated above, the RMA gives its support to the major provisions of the Natural Gas Consumer Regulatory Reform Amendments of 1983, but we do stress two points:

1. Surcharging (incremental pricing) or discounting as currently practiced to protect or discourage market segments should be specifically discontinued.
2. The same "take or pay" provisions specified for pipeline companies should also be extended to local distribution companies.

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March 23, 1983

Honorable James A. McClure
United State Senate
Dirksen Senate Office Building
Room SD361
Washington, D.C. 20510

Dear Senator McClure:

It has come to my attention that certain misperceptions about drilling incentives under the Natural Gas Policy Act of 1978 ("NGPA") are being generated by the discussions of pending natural gas deregulation legislation.

I am an attorney in Washington, D.C., and, among other clients, represent Texas Oil & Gas Production Co. ("TXO"). an independent producer of natural gas which was second in the drilling and completion of onshore natural gas wells in the United States in 1982. Most of these wells were NGPA Section 102 and 103 wells. TXO will be participating in its first well deeper than 15,000 feet during its 1983 fiscal year.

Secretary Hodel and others have stated that passage of the Administration bill (S.615 and H.R.1760) is needed, among other reasons, because of the skewed drilling incentives under the NGPA. At a recent breakfast meeting sponsored by the National Association of Manufacturers, Secretary Hodel suggested that the Administration bill will cause the drilling of shallower wells and will bring lower cost gas to market. Similarly, in testimony before the House Subcommittee on Fossil and Synthetic Fuels, he stated that "The Administration's proposal would improve national welfare by increasing the incentives to develop the least costly gas first." 1/

1/ Statement of Donald Paul Hodel, Secretary of Energy, before the House of Representatives Committee on Energy and Commerce, Subcommittee on Fossil and Synthetic Fuels, p. 11 (March 16, 1983) (emphasis added).

At the breakfast meeting, Secretary Hodel further implied that most new gas drilling is occurring for decontrolled gas at depths greater than 15,000 feet rather than at shallower depths.

It is my position that these statements are misleading, and that the record thereon should be clarified.

The Department of Energy is currently circulating a working draft entitled "An Economic Analysis of Natural Gas Resources and Supply" which contains statistics showing the number of natural gas wells drilled at various depths between 1968 and 1982. Figure 2.2, Figure 7.2 and 7.3, and Table A.1, attached hereto, are especially relevant. The information in these graphs and tables clearly demonstrates that the NGPA provides significant incentives to drill at shallower depths. The information in Table A.1, for example, reveals that 54% of the natural gas wells estimated to have been drilled in 1982 were between 0 and 5,000 feet; 30% were between 5,000 and 10,000 feet; 13% were between 10,000 and 15,000 feet; and only 3% were deeper than 15,000 feet. The percentages were almost the same in 1981 (58%, 29%, 10%, and 2%, respectively). Because many of the deeper than 15,000 foot wells have both higher ultimate recovery and higher initial production rates per well, the relative quantities of production attributable to these deep wells most likely will exceed, by a substantial amount, 3% of the gas production attributable to 1981 and 1982 vintage gas wells. 2/

Because, as shown above, shallow gas drilling is presently occurring under the NGPA, it is quite obvious that decontrol of old gas is not needed to bring "low cost" gas to market. That problem could be cured by the provisions in the Administration's bill (and others) dealing with so-called "contract" problems -- provisions dealing with fraud and abuse,

---

2/ See, for example, Figures 7.2 and 7.3 attached hereto.

take-or-pay, and indefinite price escalator clauses. In summary, Secretary Hodel has not offered any explanation to date regarding why decontrol of old gas is needed in addition to the provisions to correct the contract problem.

I would appreciate your entering this letter, with attachments, into the record being developed by the Senate Committee on Energy and Natural Resources.

Very truly yours,

Edward H. Forgotson

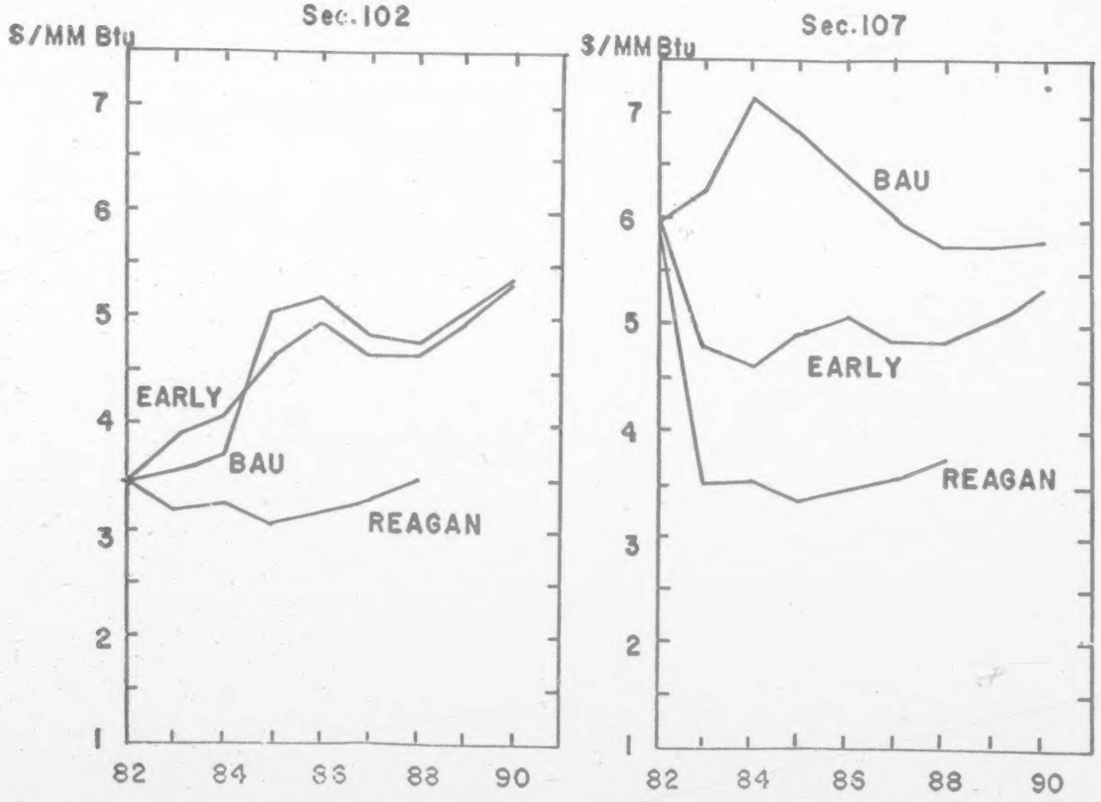
Edward H. Forgotson

Attachments

EHF/sab

FIGURE 1

OPCON's Projected Wellhead Natural Gas Prices --
Sections 102 and 107, 1982 Dollars



DOE/EIA-0388(DRAFT A)

Energy Information Administration

WORKING DRAFT

AN ECONOMIC ANALYSIS OF NATURAL GAS RESOURCES AND SUPPLY

March 1983

This Working Draft is being circulated for review and comment. That review is not yet complete, and this draft is subject to major revision. It should not be distributed for purposes other than review, may not be referenced or quoted, and should not be construed as an official Energy Information Administration or Department of Energy position.

Reserves and Natural Gas Division
Office of Oil and Gas
Energy Information Administration
Washington, D.C. 20585

SPECIFIC INFORMATION REGARDING THE PREPARATION OR CONTENT OF THESE REPORTS MAY BE OBTAINED FROM RICHARD P. O'NEILL, CHIEF OF THE DATA ANALYSIS AND FORECASTING BRANCH (202/252-4680), OR PHIL SHAMBAUGH (202/252-9592).

WORKING DRAFT

The Society of the Plastics Industry, Inc.

SPI

605 14th Street, N.W.
7th Floor
Washington, D.C. 20005
(202) 628-0270

Official Committee File

April 8, 1983

SENATE COMMITTEE ON
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[illegible] 20510

Honorable James A. McClure
Chairman, Committee on Energy
and Natural Resources
U.S. Senate
SD-360 Dirksen Senate Office Building
Washington, D.C. 20510

Dear Mr. Chairman:

On behalf of The Society of the Plastics Industry, I forward the attached statement on natural gas legislation that is pending before the Senate Committee on Energy and Natural Resources. I request that these views be made a part of the record of the hearings just completed on the subject.

Thank you for your consideration.

Sincerely,

Lew Freeman

Lewis R. Freeman, Jr.
Director
Federal Government Affairs

LRF/clw
Enclosure
cc: Members, Committee on Energy and Natural Resources

Official Committee File

STATEMENT
OF
THE SOCIETY OF THE PLASTICS INDUSTRY, INC.
CONCERNING
PENDING LEGISLATION TO AMEND THE NATURAL GAS POLICY ACT OF 1978
SUBMITTED TO THE
SENATE COMMITTEE ON ENERGY AND NATURAL RESOURCES

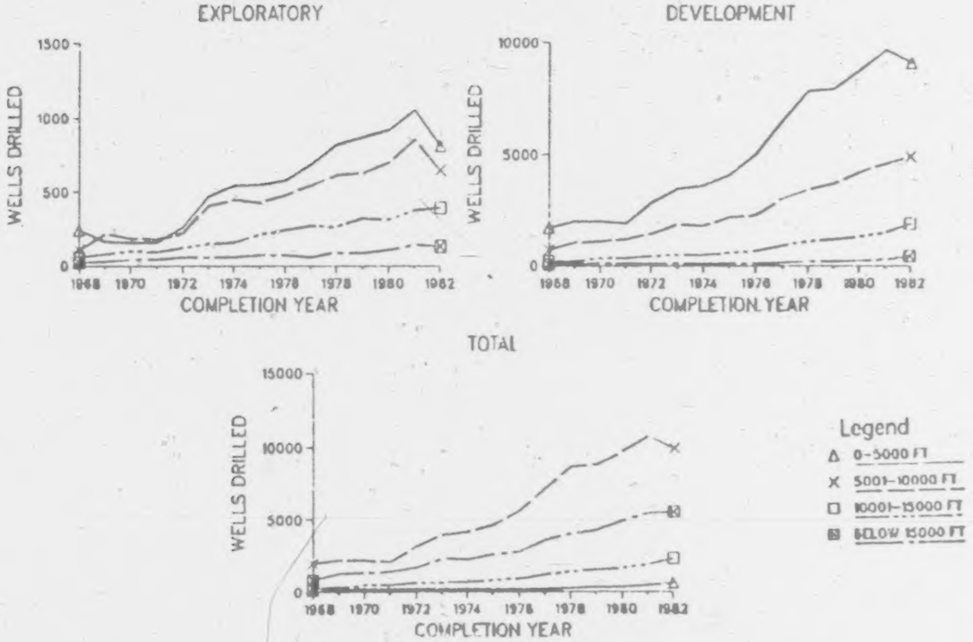
Natural gas is a primary source of feedstock to produce raw material for the plastics industry. Approximately one-half of the plastics resins produced in this country are derived from natural gas. As a major material supplier for the manufacture of goods in virtually all markets, the plastics industry is interested in a reliable supply of raw materials at a competitive price. The Natural Gas Policy Act of 1978 has contributed considerable uncertainty to the dynamics of the price and supply of natural gas and its derivatives. We believe all sources of energy should be priced and used according to market forces. We believe S. 615, as proposed by the Administration, would accomplish that objective in the best manner practicable; and we support its passage.

Plastics materials have become over the past several years the principal building block for finished goods in many markets. In packaging, interior furnishings, building materials, medical devices, transportation equipment, electronics, appliances, and housewares, plastics are a principal, and in some cases the dominant material used. We nevertheless must constantly compete with producers of alternative materials, as well as with foreign producers of plastics materials, for market shares. It is thus in our industry's interest to have an assured supply of raw material available at a competitive price.

Approximately one-half of the plastics produced in this country are derived from natural gas, including low and high density polyethylene (widely used in packaging) and polyvinyl chloride (widely used in building and construction applications). Some natural gas is also invaluable for process use in a number of plastics manufacturing operations, including film conversion, coating, and decorating. The present law governing the use and wellhead price of natural gas has resulted in price instability and supply uncertainty. Even in the midst of an abundance of natural gas due to lower overall economic demand, the incentive for producers to provide needed future supplies of this raw material for the plastics industry is clearly absent from the existing law.

The Natural Gas Policy Act of 1978 is not working. It has replaced supply uncertainties with price instability and longer range supply questions. While apprehensions about the NGPA are shared by many diverse points of view, the plastics industry is concerned about proposals that seek to remedy one mistake with another. The deficiencies of regulation cannot be remedied by more regulation. Our nation's experience with oil controls should have taught us that lesson. The ultimate removal of government-imposed

FIGURE 2.2: NUMBER OF WELLS THAT DISCOVERED NATURAL GAS IN THE LOWER-48 STATES BY DEPTH CLASS AND COMPLETION YEAR, 1968–1982



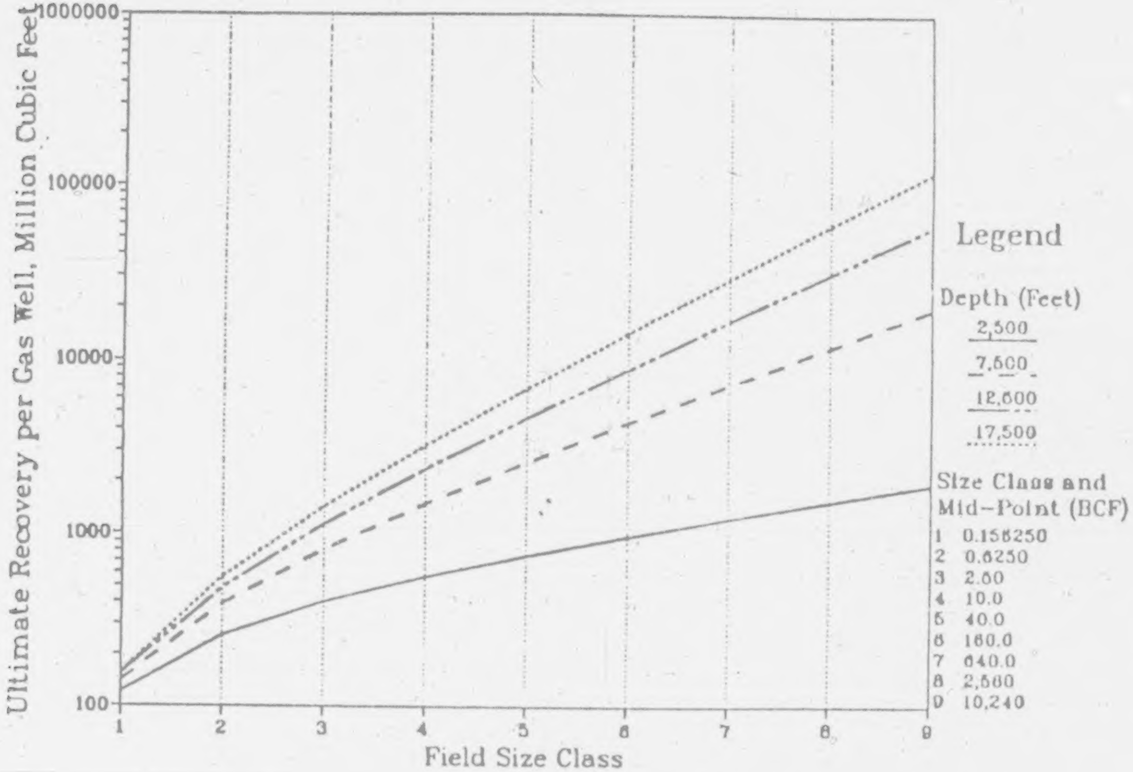


Figure 7.2. Calculated Ultimate Recovery per Well by Class Size and Depth in the West Texas Region

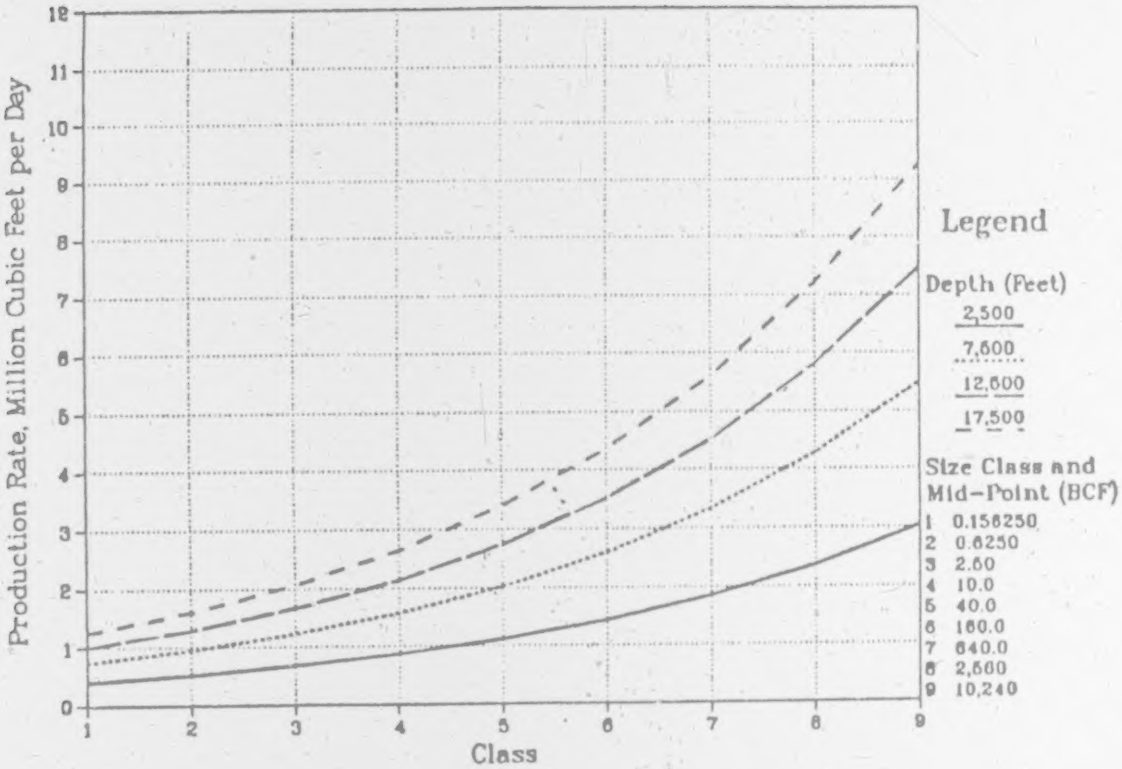


Figure 7.3. Initial Production Rate per Well at 25 percent of Absolute Open Flow Potential by Class Size and Depth in the West Texas Region

Table A.1. Total Number of Wells Drilled By Region, Depth Class, and Type of Hydrocarbon Discovered, 1968 through 1982

FOR ONSHORE AND OFFSHORE LOWER 48

DEPTH CATEG	TYPE WELLS	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	EST. 1980	EST. 1981	EST. 1982
ZERO TO 5000 FT	OIL	10,811	8,761	8,202	7,861	7,334	6,443	9,517	11,718	12,288	12,762	13,267	14,359	22,369	28,006	27,233
	GAS	1,929	2,165	2,159	2,044	3,109	3,927	4,129	4,624	5,591	7,181	8,682	8,824	9,722	10,758	9,942
	DRY	8,781	7,315	6,236	5,708	5,992	5,659	6,891	7,975	8,086	8,742	9,738	9,622	12,470	15,990	16,637
	TOT	21,521	18,241	16,597	15,613	16,435	16,029	20,537	24,317	25,965	28,685	31,687	32,805	44,561	54,754	53,811
5001 - 10000	OIL	2,980	4,146	4,054	3,366	3,390	3,207	3,573	4,582	4,722	5,226	4,921	5,119	7,492	10,421	10,543
	GAS	814	1,244	1,275	1,363	1,656	2,268	2,243	2,593	2,754	3,556	4,021	4,305	4,915	5,454	5,575
	DRY	3,460	4,725	3,623	3,496	3,665	3,558	4,044	4,360	4,325	4,731	5,029	4,554	5,366	7,290	7,410
	TOT	7,254	10,115	8,952	8,225	8,711	9,033	9,860	11,535	11,801	13,513	13,971	13,978	17,773	23,164	23,528
10001 - 15000	OIL	720	728	701	607	590	518	486	579	600	624	656	738	963	1,415	1,790
	GAS	233	278	440	436	560	617	654	776	903	1,185	1,364	1,508	1,618	1,870	2,276
	DRY	1,142	1,365	1,046	1,017	1,148	1,054	1,098	1,191	1,264	1,343	1,520	1,446	1,503	2,064	2,440
	TOT	2,095	2,371	2,187	2,060	2,298	2,189	2,238	2,546	2,767	3,152	3,540	3,692	4,084	5,349	6,506
15001 & DEEPER	OIL	57	58	48	56	132	75	74	60	36	46	51	45	52	85	75
	GAS	79	76	157	143	155	166	145	180	178	193	265	279	324	422	567
	DRY	219	203	182	172	203	198	183	208	162	207	273	268	317	385	489
	TOT	355	337	387	371	490	439	402	448	376	446	589	592	694	892	1,131
GRAND TOTAL	OIL	14,568	13,693	13,005	11,890	11,446	10,243	13,650	16,939	17,646	18,658	18,895	20,261	30,877	39,927	39,641
	GAS	3,055	3,763	4,031	3,986	5,480	6,978	7,171	8,173	9,426	12,115	14,332	14,916	16,579	18,504	18,360
	DRY	13,602	13,608	11,087	10,393	11,008	10,469	12,216	13,734	13,837	15,023	16,560	15,890	19,656	25,729	26,976
	TOT	31,225	31,064	28,123	26,269	27,934	27,690	33,037	38,846	40,909	45,796	49,787	51,067	67,112	84,160	84,977

wellhead price controls and regulations over the use of natural gas must be the principal energy goal for the Congress and the nation.

The Administration's proposal for remedying the problems brought about by NGPA represent a balanced approach to a complicated issue. It addresses all major aspects of the natural gas problem without showing undue bias for any particular interests. As essentially indirect users of natural gas, the plastics industry does not have comments on all aspects of the legislation. We do offer the following observations:

1. The plastics industry ideally prefers complete natural gas deregulation by January 1, 1985, without government interference in the contract process between suppliers and purchasers. However, we recognize a number of problems and concerns exist in this area and appreciate the need for legislation to address the matter of contracts. We believe the Administration approach is a valid compromise and a workable solution.

2. Old gas must be included in any legislation removing price controls. Some have argued that if a purpose of deregulation is to encourage exploration for new production, there is no economic reason to remove controls on gas from older wells. We disagree. First, there needs to be an economic incentive for production to be resumed or increased in many of the old gas fields. Often the

controlled price is so low it is not economic to sell it. Second, continuing controls for any one category of gas will only perpetuate the same problem that has made the NGPA so unworkable. It will tend to drive up prices for newly-discovered gas and create a disincentive to sell older gas. All consumers, be they residential, industrial or petrochemical, will be the ultimate losers.

3. We agree with the elimination of provisions of the Fuel Use Act and the concept of incremental pricing. The sooner they are off the books the better.

In conclusion, The Society of the Plastics Industry, speaking as a major raw material consumer of natural gas derivatives, believes S. 615 is workable and balanced. It should be passed.

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